TABLE II.—

Kaliyuga.	Vikrama era.	Śaka era.	Commencement of solar year. Month and day A.D.	Commencement of solar year. Fraction of day.	First new moon in solar year.	Anomaly of first new-moon.	Christian era.	Vaiśākha. Week-day.	Vaiśākha. Month.	Vaiśākha. Day.	Vaiśākha. Fraction.	Jyeshṭha. Week-day.	Jyeshṭha. Month.	Jyeshṭha. Day.	Jyeshṭha. Fraction.	Āshāḍha. Week-day.	Āshāḍha. Month.	Āshāḍha. Day.	Āshāḍha. Fraction.	Śrāvaṇa. Week-day.	Śrāvaṇa. Month.	Śrāvaṇa. Day.	Śrāvaṇa. Fraction.	Bhādrapada. Week-day.	Bhādrapada. Month.	Bhādrapada. Day.	Bhādrapada. Fraction.
							A.D.																				
4209	1165	1030	28M	·6853	20·0037	17·479	**1108**	1	Ap	12	·69	3	My	12	·23	4	Je	10●	·75	6	Jl	10	·28	7	Au	8	·81
4210	1166	1031	28M	·9440	9·1120	18·636	**1109**	6	Ap	2	·06	7	My	1○	·59	2	My	31●	·12	3	Je	29	·65	5	Jl	29	·18
4211	1167	1032	24M	·2028	27·7509	11·770	**1110**	4	Ap	20○	·95	6	My	20	·48	1	Je	19	·01	2	Jl	18	·54	4	Au	17	·08
4212	1168	1033	24M	·4615	16·8592	7·927	**1111**	2	Ap	10○	·32	3	My	9	·85	5	Je	8	·38	6	Jl	7	·91	1	Au	6	·44
4213	1169	1034	23M	·7203	5·9675	4·084	**1112**	6	Mr	29	·69	1	Ap	28	·22	2	My	27	·75	4 Je 26 5 Jl 25			·28 ·81	7	Au	24	·34
4214	1170	1035	23M	·9791	24·6064	2·217	**1113**	5	Ap	17	·58	7	My	17	·12	1	Je	15	·65	3	Jl	15	·18	4	Au	13○	·71
4215	1171	1036	24M	·2378	13·7147	25·929	**1114**	2	Ap	6	·95	4	My	6	·48	6	Je	5	·01	7	Jl	4	·54	2	Au	3○	·07
4216	1172	1037	24M	·4966	2·8230	22·087	**1115**	7	Mr	27	·32	1 Ap 25 3 My 25			·85 ·38	4	Je	23	·91	6	Jl	23●○	·44	7	Au	21	·97
4217	1173	1038	23M	·7553	21·4619	20·220	**1116**	6	Ap	14	·22	7	My	13	·75	2	Je	12	·28	3	Jl	11	·81	5	Au	10	·34
4218	1174	1039	24M	·0141	10·5702	16·377	**1117**	3	Ap	3	·58	5	My	3	·11	6	Je	1○	·64	1	Jl	1	·18	2	Jl	30	·71
4219	1175	1040	24M	·2728	29·2090	14·510	**1118**	2	Ap	22	·48	4	My	22●○	·01	5	Je	20	·54	7	Jl	20	·07	1	Au	18	·60
4220	1176	1041	24M	·5316	18·3173	10·668	**1119**	6	Ap	11	·85	1	My	11●	·38	2	Je	9	·91	4	Jl	9	·44	5	Au	7	·97
4221	1177	1042	23M	·7904	7·4256	6·825	**1120**	4	Mr	31○	·22	5	Ap	29	·75	7	My	29	·28	1	Je	27	·81	3 Jl 27 4 Au 25			·34 ·87
4222	1178	1043	24M	·0491	26·0645	4·958	**1121**	3	Ap	19	·11	4	My	18	·64	6	Je	17	·17	7	Jl	16	·70	2	Au	15	·24
4223	1179	1044	24M	·3079	15·1728	1·115	**1122**	7	Ap	8	·48	2	My	8	·01	3	Je	6	·54	5	Jl	6	·07	6	Au	4	·60
4224	1180	1045	24M	·5866	4·2811	24·827	**1123**	4	Mr	28	·85	6	Ap	27	·38	7 My 26 2 Je 25			·91 ·44	3	Jl	24	·97	5	Au	23●	·50
4225	1181	1046	23M	·8254	22·9200	22·960	**1124**	3	Ap	15	·74	5	My	15	·27	6	Je	13	·80	1	Jl	13○	·34	2	Au	11●	·87
4226	1182	1047	24M	·0841	12·0283	19·118	**1125**	1	Ap	5	·11	2	My	4	·64	4	Je	3	·17	5	Jl	2○	·70	7	Au	1	·23
4227	1183	1048	24M	·3429	1·1366	15·275	**1126**	5	Mr	25	·48	7 Ap 24 1 My 23			·01 ·54	3	Je	22●○	·07	4	Jl	21	·60	6	Au	20	·13
4228	1184	1049	24M	·6016	19·7755	13·408	**1127**	4	Ap	13	·38	5	My	12○	·91	7	Je	11	·44	1	Jl	10	·97	3	Au	9	·50
4229	1185	1050	23M	·8604	8·8838	9·565	**1128**	1	Ap	1	·74	3	My	1○	·27	4	My	30	·80	6	Je	29	·34	7	Jl	28	·87
4230	1186	1051	24M	·1192	27·5227	7·699	**1129**	7	Ap	20●○	·64	2	My	20	·17	3	Je	18	·70	5	Jl	18	·23	6	Au	16	·76
4231	1187	1052	24M	·3779	16·6310	3·856	**1130**	5	Ap	10	·01	6	My	9	·54	1	Je	8	·07	2	Jl	7	·60	4	Au	6	·13
4232	1188	1053	24M	·6367	5·7393	0·013	**1131**	2	Mr	30	·38	3	Ap	28	·91	5 My 28 6 Je 26			·44 ·97	1	Jl	26	·50	3	Au	25○	·03
4233	1189	1054	23M	·9954	24·3782	25·701	**1132**	1	Ap	17	·27	2	My	16	·80	4	Je	15	·33	5	Jl	14	·86	7	Au	13○	·40
4234	1190	1055	24M	·1542	13·4865	21·858	**1133**	5	Ap	6	·64	7	My	6	·17	1	Je	4	·70	3	Jl	4	·23	4	Au	2●○	·76
4235	1191	1056	24M	·4129	2·5948	18·015	**1134**	3	Mr	27	·01	4 Ap 25 6 My 25			·54 ·07	7	Je	23	·60	2	Jl	23●	·13	3	Au	21	·66
4236	1192	1057	24M	·6717	21·2336	16·149	**1135**	1	Ap	14	·90	3	My	14	·44	4	Je	12○	·97	6	Jl	12	·50	1	Au	11	·03
4237	1193	1058	23M	·9305	10·3419	12·306	**1136**	6	Ap	3	·27	7	My	2	·80	2	Je	1○	·33	3	Je	30	·86	5	Jl	30	·39
4238	1194	1059	24M	·1892	28·9808	10·439	**1137**	5	Ap	22	·17	6	My	21	·70	1	Je	20	·23	2	Jl	19	·76	4	Au	18	·29
4239	1195	1060	24M	·4480	18·0691	6·596	**1138**	2	Ap	11○	·54	4	My	11	·07	5	Je	9	·60	7	Jl	9	·13	1	Au	7	·66
4240	1196	1061	24M	·7067	7·1974	2·754	**1139**	6	Mr	31○	·90	1	Ap	30	·43	2	My	29	·96	4 Je 28 6 Jl 28			·50 ·03	7	Au	26	·56
4241	1197	1062	23M	·9655	25·8363	0·887	**1140**	5	Ap	18	·80	7	My	18	·33	1	Je	16	·86	3	Jl	16	·39	4	Au	14	·92
4242	1198	1063	24M	·2242	14·9446	24·599	**1141**	8	Ap	8	·17	4	My	7	·70	6	Je	6	·23	7	Jl	5	·76	2	Au	4	·29
4243	1199	1064	24M	·4830	4·0529	20·756	**1142**	7	Mr	28	·54	2	Ap	27	·07	3 My 26 5 Je 25			·60 ·13	6	Jl	24○	·66	1	Au	23	·19
4244	1200	1065	24M	·7418	22·6918	18·889	**1143**	6	Ap	16	·43	7	My	15	·96	2	Je	14	·49	4	Jl	14○	·02	5	Au	12●	·56
4245	1201	1066	24M	·0005	11·8001	15·047	**1144**	3	Ap	4	·80	5	My	4	·33	6	Je	2	·86	1	Jl	2○	·39	2	Jl	31	·92
4246	1202	1067	24M	·2593	0·9064	11·204	**1145**	1 Mr 25 2 Ap 23			·17 ·70	4	My	23○	·23	5	Je	21●	·76	7	Jl	21	·29	1	Au	19	·82
4247	1203	1068	24M	·5180	19·5473	9·337	**1146**	7	Ap	13	·06	1	My	12○	·60	3	Je	11●	·13	4	Jl	10	·66	6	Au	9	·19
4248	1204	1069	24M	·7768	8·6555	5·494	**1147**	4	Ap	2	·43	5	My	1○	·96	7	My	31	·49	2	Je	30	·02	3 Jl 29 5 Au 28			·55 ·08
4249	1205	1070	24M	·0855	27·2945	3·628	**1148**	3	Ap	20●	·33	4	My	19	·86	6	Je	18	·39	7	Jl	17	·92	2	Au	16	·45
4250	1206	1071	24M	·2948	16·4028	27·339	**1149**	7	Ap	9	·70	2	My	9	·23	3	Je	7	·76	5	Jl	7	·29	6	Au	5	·82
4251	1207	1072	24M	·5530	5·5111	23·497	**1150**	5	Mr	30	·06	6	Ap	28	·59	1 My 28 2 Je 26			·12 ·66	4	Jl	26	·18	5	Au	24○	·72
4252	1208	1073	24M	·8118	24·1500	21·630	**1151**	3	Ap	17	·96	5	My	17	·49	7	Je	16	·02	1	Jl	15	·55	3	Au	14○	·08
4253	1209	1074	24M	·0706	13·2583	17·787	**1152**	1	Ap	6	·83	2	My	5	·86	4	Je	4	·39	5	Jl	3	·92	7	Au	2	·45
4254	1210	1075	24M	·3293	2·3668	13·944	**1153**	5	Mr	26	·70	7 Ap 25 1 My 24			·23 ·76	3	Je	23○	·29	4	Jl	22●	·82	6	Au	21	·35
4255	1211	1076	24M	·5881	21·0054	12·078	**1154**	4	Ap	14	·59	6	My	14	·12	7	Je	12○	·65	2	Jl	12	·18	3	Au	10	·72
4256	1212	1077	24M	·8468	10·1137	8·235	**1155**	1	Ap	3	·96	3	My	3	·49	5	Je	2●○	·02	6	Jl	1	·55	1	Jl	31	·08
4257	1213	1078	24M	·1056	28·7526	6·368	**1156**	7	Ap	21○	·86	2	My	21●	·39	3	Je	19	·92	5	Jl	19	·45	6	Au	17	·98
4258	1214	1079	24M	·3643	17·8609	2·525	**1157**	5	Ap	11○	·22	6	My	10	·76	1	Je	9	·29	2	Jl	8	·82	4	Au	7	·35
4259	1215	1080	24M	·6231	6·9692	26·237	**1158**	2	Mr	31○	·59	4	Ap	30	·12	5	My	29	·65	7 Je 28 1 Jl 27			·18 ·71	3	Au	26	·24
4260	1216	1081	24M	·8819	25·6081	24·370	**1159**	1	Ap	19	·49	3	My	19	·02	4	Je	17	·55	6	Jl	17	·08	7	Au	15	·61
4261	1217	1082	24M	·1406	14·7164	20·527	**1160**	5	Ap	7	·86	7	My	7	·39	1	Je	5	·92	3	Jl	5	·45	4	Au	3○	·98
4262	1218	1083	24M	·3994	3·8247	16·685	**1161**	3	Mr	28	·22	4	Ap	26	·75	6 My 26 7 Je 24			·28 ·82	2	Jl	24○	·35	3	Au	22	·88
4263	1219	1084	24M	·6581	22·4636	14·818	**1162**	2	Ap	16	·12	3	My	15	·65	5	Je	14	·18	6	Jl	13●○	·71	1	Au	12	·24

N.B.—For tithis by other siddhāntas add algebraically to

Sūrya siddhānta—*cont.*

	Āśvina.			Kārttika.			Mārgaśīrsha.			Pausha.			A.D.	Māgha.			A.D.	Phālguna.			Chaitra.		
	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
	2	S	7	·34	3	O	6	·87	5	N	5	·40		6	D	4	·93								
	6	Au	27	·71																					
	1	S	26	·24	2	O	25○	·77	4	N	24●	·30		5	D	23	·83	09	1	Jr	3	·46	2	F	1	·99	4	Mr	3	·52
	5	S	15	·61	7	O	15●○	·14	1	N	13	·67		3	D	13	·20	10	7	Jr	22	·26	1	F	20	·89	3	Mr	22	·42
	2	S	4	·97	4	O	4○	·50	6	N	3	·03		7	D	2	·56	11	4	Jr	11	·73	6	F	10	·26	7	Mr	11	·79
	1	S	22	·87	3	O	22	·40	4	N	20	·93		6	D	20	·46	12	2	Jr	1	·10	3	Jr	30	·63	5	F	29	·16
	6	S	12	·24	7	O	11	·77	2	N	10	·30		3	D	9	·83	13	7	Jr	18	·99	2	F	17○	·52	4	Mr	19●	·05
	3	S	1	·60	5	O	1	·14	6	O	30	·67		1	N	29	·20	14	5	Jr	8	·36	6	F	6○	·89	1	Mr	8	·42
														2	D	28	·73	15	4	Jr	27○	·26	5	F	25	·79
	2	S	20	·50	4	O	20	·03	5	N	18	·56		7	D	18	·09	16	1	Jr	16	·62	3	F	15	·16	4	Mr	15	·69
	6	S	8	·87	1	O	8	·40	2	N	6	·93		4	D	6○	·46	17	5	Jr	4	·99	7	F	3	·52	2	Mr	5	·05
	4	Au	29	·24	5	S	27	·77	7	O	27	·30		1	N	25○	·83		3	D	25	·36	18	4	Jr	23	·89	6 F 22	·42
	3	S	17	·13	4	O	16	·66	6	N	15●○	·20		7	D	14	·73	19	2	Jr	13	·26					7 Mr 23	·95
	7	S	6	50	2	O	6	·03	3	N	4	·56		5	D	4	·09	20	6	Jr	2	·62	3	F	11	·79	5	Mr	13	·32
	6	S	24○	·40	7	O	23●	·93	2	N	22	·46		3	D	21	·99						1	F	1	·15	2	Mr	1	·68
	3	S	13○	·77	5	O	13	·30	6	N	11	·83		1	D	11	·36	21	5	Jr	20	·52	7	F	19	·05	1	Mr	20○	·58
	1	S	3○	·13	2	O	2	·66	4	N	1	·19		5	N	30	·72	22	2	Jr	9	·89	4	F	8	·42	5	Mr	9●○	·95
														7	D	30	·26												
	7	S	22	·03	1	O	21	·56	3	N	20	·09		4	D	19	·62	24	6	Jr	18○	·15	23	1	Jr	28	·79	3	F	27	·32
	4	S	10	·40	5	O	9	·93	7	N	8	·46		1	D	7	·99	25	3	Jr	6○	·52								
	1	Au	30	·76	3	S	29	·30	4	O	28	·83		6	N	27	·36		7	D	26○	·89		7	F	16	·68	2	Mr	17	·21
	7	S	18	·66	2	O	18	·19	3	N	16	·72		5	D	16	·25	27	6	Jr	14	·78		5	F	5	·05	6	Mr	6	·58
	5	S	8	·03	6	O	7	·56	1	N	6○	·09		2	D	5	·62	28	4	Jr	4	·15	26	2	Jr	25	·42	3	F	23	·95
	2	Au	27	·40																										
	3	S	25	·93	5	O	25○	·46	6	N	23	·99		1	D	23	·52	29	3	Jr	22	·05		1	F	13	·32	2	Mr	14	·85
	1	S	15	·29	2	O	14●○	·82	4	N	13	·36		5	D	12	·89	30	7	Jr	11	·42		5	F	2	·68	7	Mr	3	·21
	5	S	4	·66	7	O	4●	·19	1	N	2	·72		3	D	2	·25		4	D	31	·78		4	F	20	·58	6	Mr	22	·11
	4	S	23●	·56	6	O	23	·09	7	N	21	·62		2	D	21	·15	31	1	Jr	9	·95								
	1	S	11	·93	3	O	11	·46	4	N	9	·99		6	D	9	·52		6	Jr	30	·31	3	Mr	11	·48				
	6	S	1	·29	7	S	30	·82	2	O	30	·35		3	N	28	·88						7	F	28○	·84				
	5	S	20	·19	6	O	19	·72	1	N	18	·25		2	D	17○	·78	32	3	Jr	19	·68		5	F	18○	·21	6	Mr	18	·74
	2	S	9	·56	4	O	9	·09	5	N	7	·62		7	D	7○	·15	33	1	Jr	8	·05		2	F	6○	·58	4	Mr	8	·11
	6	Au	28	·92	1	S	27	·46	2	O	26	·99		4	N	25○	·52		5	D	28	·42	34	6	Jr	26●	·95	1	F	25	·48
	5	S	16	·82	7	O	16	·35	1	N	14●	·88		3	D	14	·41	35	4	Jr	16●	·31		5	F	14	·84	7	Mr	16	·37
	3	S	6	·19	4	O	5○	·72	6	N	4	·25		7	D	3	·78	36	1	Jr	5	·68		3	F	4	·21	4	Mr	4	·74
	2	S	25○	·09	3	O	24	·62	5	N	23	·15		6	D	22	·68		6	D	25	·05	37	7	Jr	23	·58	2 F 22	·11
	6	S	13●○	·45	7	O	12	·98	2	N	11	·52		4	D	11	·05	38	4	Jr	12	·94						3 Mr 23	·64
	3	S	2●	·82	5	O	2	·35	6	O	31	·88		1	N	30	·41	39	2	Jr	2	·31		6	F	11	·48	1	Mr	13	·01
																								3	Jr	31	·84	5	Mr	2	·37
	2	S	21	·72	4	O	21	·25	5	N	19	·78		7	D	19	·31	40	1	Jr	21	·21		2	F	19	·74	4	Mr	20○	·27
	7	S	11	·09	1	O	10	·62	3	N	9	·15		4	D	8	·68	41	5	Jr	9	·58		7	F	8	·11	1	Mr	9●	·64
	4	Au	30	·45	5	S	28	·98	7	O	28	·51		2	N	27	·04		2	D	29	·94	42	4	Jr	28○	·47	6	F	27	·00
	3	S	18	·35	4	O	17	·88	6	N	16○	·41		7	D	15	·94	43	1	Jr	17○	·84		3	F	16	·37	4	Mr	17	·90
	7	S	7	·72	2	O	7	·25	3	N	5○	·78		5	D	5	·31	44	6	Jr	7○	·21		7	F	5	·74	2	Mr	6	·27
																			3	D	26●	·58	45	5	Jr	25	·11	6	F	23	·64
	6	S	26	·62	1	O	26●○	·15	2	N	24	·68		4	D	24	·21	46	2	Jr	14	·47		4	F	13	·00	5	Mr	14	·53
	3	S	14	·98	5	O	14	·51	7	N	13	·04		1	D	12	·57	47	6	Jr	3	·84		1	F	2	·37	2	Mr	3	·90
	1	S	4○	·35	2	O	3	·88	4	N	2	·41		5	D	1	·94	48	5	Jr	22	·74		7	F	21	·27	1	Mr	21	·80
	7	S	23	·25	1	O	22	·78	3	N	21	·31		4	D	20	·84	49	3	Jr	11	·10		4	F	9	·64	6	Mr	11○	·17
																			7	D	31	·47	50	2	Jr	30	·00	3	F	28○	·53
	4	S	12	·61	6	O	12	·18	7	N	10	·68		2	D	10	·21	51	6	Jr	19	·37		7	F	17●○	·90	2	Mr	19	·43
	1	Au	31	·98	3	S	30	·51	5	O	30	·04		6	N	28	·57	52	3	Jr	8	·74		5	F	7●	·27	3	Mr	7	·80
	7	S	19	·88	2	O	19	·41	3	N	17	·94		5	D	17○	·47		1	D	28○	·10	53	2	Jr	26●	·63	4	F	25	·16
	5	S	9	·25	6	O	8	·78	1	N	7	·31		2	D	6○	·84	54	7	Jr	16	·00		1	F	14	·53	3	Mr.	16	·06
	2	An	29	·61	4	S	28	·14	5	O	27	·67		7	N	26●	·20	55	4	Jr	5	·37		5	F	3	·90	7	Mr.	5	·43
																			1	D	25	·74	56	3	Jr	24	·27				
	1	S	16	·51	3	O	16○	·04	4	N	14	·57		6	D	14	·10							4	F	22	·80	6	Mr	23	·33
	5	S	5	·88	7	O	5○	·41	1	N	3	·94		3	D	3	·47	57	7	Jr	12	·63		2	F	11	·16	3	Mr	12	·69
																		58	5	Jr	2	·00		6	Jr	31	·53	1	Mr	2	·06
	4	S	24○	·78	6	O	24	·31	7	N	22	·84		2	D	22	·37	59	3	Jr	20	·90								
	2	S	14	·14	3	O	13	·67	5	N	12	·20		6	D	11	·73	60	1	Jr	10	·26		5	F	19	·43	6	Mr	20	·96
	6	S	2●	·51	1	O	2	·04	2	O	31	·57		4	N	30	·10		5	D	29	·63		2	F	8○	·80	4	Mr	9	·33
	5	S	21	·41	6	O	20	·94	1	N	19	·47		3	D	19	·00	61	7	Jr	28●○	·16		1	F	26	·69				
	2	S	10	·77	4	O	10	·30	5	N	8	·84		7	D	8	·37	62	4	Jr	17●○	·53		6	F	16	·06	7	Mr	17	·59
																		63	1	Jr	6	·90		3	F	5	·43	4	Mr	6	·96

the above + ·02 for Ārya siddhānta and — ·06 for Brahma siddhānta.

TABLE II.—

Kaliyuga.	Vikrama era.	Śaka era.	Commencement of solar year. Month and day A.D.	Commencement of solar year. Fraction of day.	First new moon in solar year.	Anomaly of first new moon.	Christian era.	Vaiśākha. Week-day.	Vaiśākha. Month.	Vaiśākha. Day.	Vaiśākha. Fraction.	Jyeshṭha. Week-day.	Jyeshṭha. Month.	Jyeshṭha. Day.	Jyeshṭha. Fraction.	Āshāḍha. Week-day.	Āshāḍha. Month.	Āshāḍha. Day.	Āshāḍha. Fraction.	Śrāvaṇa. Week-day.	Śrāvaṇa. Month.	Śrāvaṇa. Day.	Śrāvaṇa. Fraction.	Bhādrapada. Week-day.	Bhādrapada. Month.	Bhādrapada. Day.	Bhādrapada. Fraction.
							A.D.																				
4264	1220	1085	24M	·9169	11·5719	10·975	**1163**	6	Ap	5	·49	1	My	5	·02	2	Je	3○	·55	4	J	3●	·08	5	An	1	·61
4265	1221	1086	24M	·1756	0·6802	7·133	**1164**	3 Mr 24 / 5 Ap 23			·86 / ·39	6	My	22○	·92	1	Je	21●	·45	2	Jl	20	·98	4	Au	19	·51
4266	1222	1087	24M	·4344	19·3191	5·266	**1165**	2	Ap	12	·75	4	My	12○	·28	5	Je	10	·81	7	Jl	10	·34	1	Au	8	·88
4267	1223	1088	24M	·6932	8·4273	1·423	**1166**	7	Ap	2	·12	1	My	1●	·65	3	My	31	·18	4	Je	29	·71	6 Jl 29 / 7 Au 27			·24 / ·77
4268	1224	1089	24M	·9519	27·0663	27·111	**1167**	6	Ap	21●	·02	7	My	20	·55	2	Je	19	·08	3	Jl	18	·61	5	Au	17	·14
4269	1225	1090	24M	·2107	16·1746	23·268	**1168**	3	Ap	9	·38	4	My	8	·92	6	Je	7	·45	7	Jl	6	·98	2	Au	5	·51
4270	1226	1091	24M	·4694	5·2829	19·426	**1169**	7	Mr	29	·75	2	Ap	28	·28	3	My	27	·81	5 Je 26 / 6 Jl 25			·34 / ·87	1	Au	24●○	·40
4271	1227	1092	24M	·7282	23·9218	17·559	**1170**	6	Ap	17	·65	1	My	17	·18	2	Je	15	·71	4	Jl	15	·24	5	Au	13	·77
4272	1228	1093	24M	·9869	13·0301	13·716	**1171**	4	Ap	7	·02	5	My	6	·55	7	Je	5	·08	1	Jl	4○	·61	3	Au	3	·14
4273	1229	1094	24M	·2457	2·1384	9·873	**1172**	1	Mr	26	·38	2 Ap 24 / 4 My 24			·91 / ·44	5	Je	22○	·98	7	Jl	22	·51	2	Au	21	·04
4274	1230	1095	24M	·5044	20·7772	8·006	**1173**	7	Ap	14	·28	1	My	13	·81	3	Je	12●○	·34	4	Jl	11	·87	6	Au	10	·40
4275	1231	1096	24M	·7632	9·8855	4·164	**1174**	4	Ap	3	·65	6	My	3○	·18	7	Je	1●	·71	2	Jl	1	·24	3	Jl	30	·77
4276	1232	1097	25M	·0220	28·5244	2·297	**1175**	3	Ap	22○	·55	5	My	22	·08	6	Je	20	·61	1	Jl	20	·14	2	Au	18	·67
4277	1233	1098	24M	·2807	17·6327	26·008	**1176**	7	Ap	10●○	·91	2	My	10	·44	3	Je	8	·97	5	Jl	8	·50	7	Au	7	·04
4278	1234	1099	24M	·5395	6·7410	22·171	**1177**	5	Mr	31	·28	6	Ap	29	·81	1	My	29	·34	2 Je 27 / 4 Jl 27			·87 / ·40	5	Au	25	·93
4279	1235	1100	24M	·7982	25·3799	20·299	**1178**	4	Ap	19	·18	5	My	18	·71	7	Je	17	·24	1	Jl	16	·77	3	Au	15○	·30
4280	1236	1101	25M	·0570	14·4882	16·457	**1179**	1	Ap	8	·54	3	My	8	·08	4	Je	6	·61	6	Jl	6	·14	7	Au	4○	·67
4281	1237	1102	24M	·3157	3·5965	12·614	**1180**	5	Mr	27	·91	7	Ap	26	·44	1 My 25 / 3 Je 24			·97 / ·50	5	Jl	24●○	·03	6	Au	22	·56
4282	1238	1103	24M	·5745	22·2354	10·747	**1181**	4	Ap	15	·81	6	My	15	·34	7	Je	13	·87	2	Jl	13	·40	3	Au	11	·93
4283	1239	1104	24M	·8333	11·3437	6·904	**1182**	2	Ap	5	·18	3	My	4	·71	5	Je	3○	·24	6	Jl	2	·77	1	Au	1	·30
4284	1240	1105	25M	·0920	0·4520	3·062	**1183**	6 Mr 25 / 1 Ap 24			·54 / ·07	2	My	23●○	·60	4	Je	22	·14	5	Jl	21	·67	7	Au	20	·20
4285	1241	1106	24M	·3508	19·0909	1·195	**1184**	5	Ap	12	·44	6	My	11	·97	1	Je	10	·50	3	Jl	10	·03	4	Au	8	·56
4286	1242	1107	24M	·6095	8·1992	24·907	**1185**	2	Ap	1○	·81	4	My	1●	·34	5	My	30	·87	7	Je	29	·40	1 Jl 28 / 3 Au 27			·93 / ·46
4287	1243	1108	24M	·8883	26·8381	23·040	**1186**	1	Ap	20	·71	3	My	20	·24	4	Je	18	·77	6	Jl	18	·30	7	Au	16	·83
4288	1244	1109	25M	·1270	15·9464	19·197	**1187**	6	Ap	10	·07	7	My	9	60	2	Je	8	·13	3	Jl	7	·66	5	Au	6	·20
4289	1245	1110	24M	·3858	5·0547	15·354	**1188**	3	Mr	29	·44	4	Ap	27	·97	6	My	27	·50	1 Je 26 / 2 Jl 25			·03 / ·56	4	Au	24●	·10
4290	1246	1111	24M	·6445	23·6936	13·488	**1189**	2	Ap	17	·34	3	My	16	·87	5	Je	15	·40	6	Jl	14○	·93	1	Au	13	·46
4291	1247	1112	24M	·9033	12·8019	9·645	**1190**	6	Ap	6	·70	1	My	6	·24	2	Je	4	·77	4	Jl	4●○	·30	5	Au	2	·83
4292	1248	1113	25M	·1621	1·9101	5·802	**1191**	4	Mr	27	·07	5 Ap 25 / 7 My 25			·60 / ·13	1	Je	23●○	·66	3	Jl	23	·19	4	Au	21	·72
4293	1249	1114	24M	·4208	20·5490	3·935	**1192**	2	Ap	13	·97	4	My	13○	·50	6	Je	12	·03	7	Jl	11	·56	2	Au	10	·09
4294	1250	1115	24M	·6796	9·6573	0·093	**1193**	7	Ap	3	·34	1	My	2○	·87	3	Je	1●	·40	4	Je	30	·93	6	Jl	30	·46
4295	1251	1116	24M	·9383	28·2962	25·780	**1194**	6	Ap	22○	·23	7	My	21	·76	2	Je	20	·30	3	Jl	19	·83	5	Au	18	·36
4296	1252	1117	25M	·1971	17·4045	21·938	**1195**	3	Ap	11●	·60	5	My	11	·13	6	Je	9	·66	1	Jl	9	·19	2	Au	7	·72
4297	1253	1118	24M	·4558	6·5128	18·095	**1196**	7	Mr	30	·97	2	Ap	29	·50	4	My	29	·03	5 Je 27 / 7 Jl 27			·56 / ·09	1	Au	25○	·62
4298	1254	1119	24M	·7146	25·1517	16·228	**1197**	6	Ap	18	·87	1	My	18	·40	2	Je	16	·93	4	Jl	16	·46	5	Au	14○	·99
4299	1255	1120	24M	·9734	14·2600	12·385	**1198**	4	Ap	8	·23	5	My	7	·76	7	Je	6	·29	1	Jl	5	·82	3	Au	4○	·36
4300	1256	1121	25M	·2321	3·3683	8·543	**1199**	1	Mr	28	·60	3	Ap	27	·13	4 My 26 / 6 Je 25			·66 / ·19	7	Jl	24	·72	2	Au	23	·25
4301	1257	1122	24M	·4909	22·0072	6·676	**1200**	7	Ap	15	·50	2	My	15	·03	3	Je	13○	·56	5	Jl	13	·09	6	Au	11	·62
4302	1258	1123	24M	·7496	11·1155	2·834	**1201**	4	Ap	4	·86	6	My	4	·40	7	Je	2○	·93	2	Jl	2	·46	3	Jl	31	·99
4303	1259	1124	25M	·0084	0·2238	26·545	**1202**	2 Mr 25 / 3 Ap 23			·28 / ·76	5	My	23●	·29	6	Je	21	·82	1	Jl	21	·35	2	Au	19	·88
4304	1260	1125	25M	·2671	18·8627	24·679	**1203**	1	Ap	13○	·13	2	My	12	·66	4	Je	11	·19	5	Jl	10	·72	7	Au	9	·25
4305	1261	1126	24M	·5259	7·9710	20·836	**1204**	5	Ap	1○	·50	7	My	1	·03	1	My	30	·56	3	Je	29	·09	4 Jl 28 / 6 Au 27			·62 / ·15
4306	1262	1127	24M	·7847	26·6099	18·969	**1205**	4	Ap	20	·39	5	My	19	·92	7	Je	18	·46	1	Jl	17	·99	3	Au	16	·52
4307	1263	1128	25M	·0434	15·7182	15·126	**1206**	1	Ap	9	·76	3	My	9	·29	4	Je	7	·82	6	Jl	7	·35	7	Au	5	·88
4308	1264	1129	25M	·3022	4·8265	11·284	**1207**	6	Mr	30	·13	7	Ap	28	·66	2 My 28 / 3 Je 26			·19 / ·72	5	Jl	26○	·25	6	Au	24●	·78
4309	1265	1130	24M	·5609	23·4653	9·417	**1208**	5	Ap	17	·03	6	My	16	·56	1	Je	15	·09	2	Jl	14○	·62	4	Au	13	·15
4310	1266	1131	24M	·8197	12·5736	5·574	**1209**	2	Ap	6	·39	3	My	5	·92	5	Je	4	·45	6	Jl	3○	·98	1	Au	2	·52
4311	1267	1132	25M	·0784	1·6819	1·731	**1210**	6	Mr	26	·76	1 Ap 25 / 2 My 24			·29 / ·82	4	Je	23	·35	5	Jl	22	·88	7	Au	21	·41
4312	1268	1133	25M	·3372	20·3208	27·419	**1211**	5	Ap	14	·66	7	My	14○	·19	1	Je	12	·72	3	Jl	12	·25	4	Au	10	·78
4313	1269	1134	24M	·5959	9·4291	23·577	**1212**	3	Ap	3	·02	4	My	2○	·56	6	Je	1	·09	7	Je	30	·62	2	Jl	30	·15
4314	1270	1135	24M	·8547	28·0680	21·710	**1213**	1	Ap	21●	·92	3	My	21	·45	4	Je	19	·98	6	Jl	19	·51	1	Au	18	·04
4315	1271	1136	25M	·1135	17·1763	17·867	**1214**	6	Ap	11	·29	7	My	10	·82	2	Je	9	·35	3	Jl	8	·88	5	Au	7	·41
4316	1272	1137	25M	·3722	6·2846	14·024	**1215**	3	Mr	31	·66	5	Ap	30	·19	6	My	29	·72	1 Je 28 / 2 Jl 27			·25 / ·78	4	Au	26○	·31
4317	1273	1138	24M	·6310	24·9235	12·158	**1216**	2	Ap	18	·55	4	My	18	·08	5	Je	16	·62	7	Jl	16	·15	1	Au	14○	·68

N.B.—For tithis by other siddhāntas, add to the above algebraically as follows :—

Sūrya siddhānta—*cont.*

Āśvina.				Kārttika.				Mārgaśīrsha.				Pausha.			A.D.	Māgha.				A.D.	Phālguna.				Chaitra.			
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.		Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
7	Au	31	·14	1	S	29	·67	3	O	29	·20	4	N	27○	·73		6	D	27	·26	**64**	7	Jr	25	·79	2	F	24	·32
6	S	18	·04	7	O	17	·57	2	N	16●○	·10	3	D	15	·63	**65**	5	Jr	14	·16		6	F	12	·69	1	Mr	14	·22
3	S	7	·41	4	O	6	·94	6	N	5○	·47	1	D	5	·00	**66**	2	Jr	3	·53		4	F	2	·06	5	Mr	3	·59
2	S	26	·30	3	O	25	·83	5	N	24	·36	6	D	23	·90	**67**	1	Jr	22	·43		2	F	20	·96	4	Mr	22○	·49
6	S	15○	·67	1	O	15	·20	2	N	13	·73	4	D	13	·26	**68**	5	Jr	11	·79		7	F	10	·32	1	Mr	10○	·85
4	S	4●○	·04	5	O	3	·57	7	N	2	·10	1	D	1	·63		3	D	31	·16	**69**	4	Jr	29	·69	6	F	28○	·22
2	S	22	·93	4	O	22	·47	6	N	21	·00	7	D	20	·53	**70**	2	Jr	19	·06		3	F	17	·59	5	Mr	19	·12
7	S	12	·30	1	O	11	·83	3	N	10	·36	4	D	9	·89	**71**	6	Jr	8○	·42		7	F	6	·96	2	Mr	8	·49
4	S	1	·67	8	O	1	·20	7	O	30	·73	2	N	29	·26		3	D	28○	·79	**72**	5	Jr	27●	·32	6	F	25	·85
3	S	19	·57	5	O	19	·10	6	N	17	·63	1	D	17○	·16	**73**	2	Jr	15	·69		4	F	14	·22	5	Mr	15	·75
7	S	8	·93	2	O	8	·46	4	N	7	·00	5	D	6	·53	**74**	7	Jr	5	·06		1	F	3	·59	3	Mr	5	·12
5	Au	29	·30	6	S	27	·83	1	O	27○	·36	2	N	25●	·89		4	D	25	·42	**75**	5	Jr	23	·95	7	F	22	·48
																										2	Mr	24	·01
4	S	17	·20	5	O	16○	·73	7	N	15	·26	1	D	14	·79	**76**	3	Jr	13	·32		4	F	11	·85	6	Mr	12	·38
1	S	5	·57	8	O	5○	·10	4	N	3	·63	6	D	3	·16	**77**	7	Jr	1	·69		2	Jr	31	·22	3	Mr	1	·75
7	S	24	·46	1	O	23	·99	3	N	22	·52	5	D	22	·06	**78**	6	Jr	20	·59		1	F	19○	·12	2	Mr	20●	·65
4	S	13●	·83	6	O	13	·36	7	N	11	·89	2	D	11	·42	**79**	3	Jr	9	·95		5	F	8○	·48	7	Mr	10	·01
2	S	3	·20	3	O	2	·73	5	N	1	·26	6	N	30	·79		1	D	30	·32	**80**	2	Jr	28○	·85	4	F	27	·38
1	S	21	·10	2	O	20	·63	4	N	19	·16	5	D	18	·69	**81**	7	Jr	17●	·22		1	F	15	·75	3	Mr	17	·28
5	S	10	·46	6	O	9	·99	1	N	8	·52	3	D	8○	·05	**82**	4	Jr	6	·58		6	F	5	·12	7	Mr	6	·65
2	Au	30	·83	4	S	29	·36	5	O	28	·89	7	N	27○	·42		1	D	26	·95	**83**	3	Jr	25	·48	5	F	24	·01
1	S	18	·73	3	O	18	·26	4	N	16●○	·79	6	D	16	·32	**84**	7	Jr	14	·85		2	F	13	·38	3	Mr	13	·91
6	S	7	·09	7	O	6	·62	2	N	5	·16	3	D	4	·69	**85**	5	Jr	3	·22		6	F	1	·75	1	Mr	3	·28
4	S	25○	·99	6	O	25●	·52	1	N	24	·05	2	D	23	·58	**86**	4	Jr	22	·11		5	F	20	·64	7	Mr	22○	·18
2	S	15○	·36	3	O	14	·89	5	N	13	·42	6	D	12	·95	**87**	1	Jr	11	·48		3	F	10	·01	4	Mr	11○	·54
6	S	4●○	·73	1	O	4	·26	2	N	2	·79	4	D	2	·32		5	D	31	·85	**88**	7	Jr	30	·38	1	F	28●	·91
5	S	22	·62	7	O	22	·15	1	N	20	·68	3	D	20	·22	**89**	4	Jr	18○	·75		6	F	17●	·28	7	Mr	18	·81
2	S	11	·99	4	O	11	·52	6	N	10	·05	7	D	9	·58	**90**	2	Jr	8○	·11		3	F	6	·64	5	Mr	8	·17
7	S	1	·36	1	S	30	·89	3	O	30	·42	4	N	28	·95		6	D	28○	·48	**91**	1	Jr	27	·01	2	F	25	·54
6	S	20	·26	7	O	19	·79	2	N	18	·32	3	D	17●	·85	**92**	5	Jr	16	·38		6	F	14	·91	1	Mr	15	·44
3	S	8	·62	5	O	8	·15	6	N	6○	·68	1	D	6	·21	**93**	2	Jr	4	·74		4	F	3	·28	5	Mr	4	·81
7	Au	28	·99	4	O	27○	·05	5	N	25	·58	**Pausha Kshaya.**					7	D	25	·11	**94**	1	Jr	23	·64	3	F	22	·17
2	S	27	·52																							4	Mr	23	·70
6	S	16	·89	1	O	16○	·42	2	N	14	·95	4	D	14	·48	**95**	6	Jr	13	·00		7	F	11	·54	2	Mr	13	·07
4	S	6	·25	5	O	5●	·78	7	N	4	·32	1	D	3	·85	**96**	3	Jr	2	·38		4	Jr	31	·91	6	Mr	1○	·44
3	S	24	·15	4	O	23	·68	6	N	22	·21	7	D	21	·74	**97**	2	Jr	20	·27		3	F	18○	·80	5	Mr	20	·34
7	S	13●	·52	2	O	13	·05	3	N	11	·58	5	D	11	·11	**98**	6	Jr	9	·64		1	F	8●○	·17	2	Mr	9	·70
4	S	2	·89	6	O	2	·42	7	O	31	·95	2	N	30	·48		4	D	30	·01	**99**	5	Jr	28●	·54	7	F	27	·07
3	S	21	·78	5	O	21	·31	6	N	19	·84	1	D	19○	·38	**12**	2	Jr	17	·91	**00**	4	F	16	·44	5	Mr	16	·97
1	S	10	·15	2	O	9	·68	4	N	8	·21	5	D	7○	·74	**01**	7	Jr	6	·27		1	F	4	·80	3	Mr	6	·33
5	Au	30	·52	7	S	29	·05	1	O	28	·58	3	N	27●○	·11		4	D	26	·64	**02**	6	Jr	25	·17	7	F	23	·70
4	S	18	·42	5	O	17	·95	7	N	16●	·48	2	D	16	·01	**03**	3	Jr	14	·54		5	F	13	·07	6	Mr	14	·60
1	S	7	·78	3	O	7○	·31	4	N	5	·84	6	D	5	·37	**04**	7	Jr	3	·90		2	F	2	·44	3	Mr	2	·97
7	S	25○	·68	2	O	25	·21	3	N	23	·74	5	D	23	·27	**05**	6	Jr	21	·80		1	F	20	·33	2	Mr	21●○	·86
5	S	15○	·05	6	O	14	·58	1	N	13	·11	2	D	12	·64	**06**	4	Jr	11	·17		5	F	9	·70	7	Mr	11●	·23
2	S	4●	·41	3	O	3	·94	5	N	2	·48	7	D	2	·01		1	D	31	·54	**07**	3	Jr	30○	·07	4	F	28●	·60
1	S	23	·31	2	O	22	·84	4	N	21	·37	5	D	20	·90	**08**	7	Jr	19○	·43		1	F	17	·96	3	Mr	18	·50
5	S	11	·68	6	O	11	·21	1	N	9	·74	3	D	9	·27	**09**	4	Jr	7○	·80		6	F	6	·33	7	Mr	7	·86
3	S	1	·05	4	S	30	·58	6	O	30	·11	7	N	28	·64		2	D	28	·17	**10**	3	Jr	26	·70	5	F	25	·23
1	S	19	·94	3	O	19	·47	5	N	18○	·00	6	D	17	·54	**11**	1	Jr	16	·07		2	F	14	·60	4	Mr	16	·13
6	S	9	·31	7	O	8	·84	2	N	7○	·37	3	D	6●	·30	**12**	5	Jr	5	·43		6	F	3	·96	1	Mr	4	·49
3	Au	28	·68	6	O	26○	·74	1	N	25	·27	2	D	24	·80	**13**	4	Jr	23	·33		5	F	21	·86	7	Mr	23	·39
5	S	27	·21																										
2	S	16	·58	4	O	16	·11	5	N	14	·64	7	D	14	·17	**14**	1	Jr	12	·70		3	F	11	·23	4	Mr	12	76
6	S	5○	·94	1	O	5●	·47	3	N	4	·00	4	D	3	·53	**15**	6	Jr	2	·06		7	Jr	31	·60	2	Mr	2○	·13
5	S	24	·84	7	O	24	·37	1	N	22	·90	3	D	22	·43	**16**	4	Jr	20	·96		6	F	19●○	·49	1	Mr	20	·02
3	S	13	·21	4	O	12	·74	6	N	11	·27	7	D	10	·80	**17**	2	Jr	9	·33		**3**	**F**	**7**	·86	5	Mr	9	·39

(1) for Arya siddhānta + ·02; (2) for Brahma siddhānta —·07; and (3) for Siddhānta Śiromaṇi —·01.

TABLE II.—

Kaliyuga.	Vikrama.	Śaka era.	Commencement of solar year. Month and day A.D.	Commencement of solar year. Fraction of day.	First new moon in solar year.	Anomaly of first new moon.	Christian era.	Vaiśākha. Week-day. Month. Day.	Vaiśākha. Fraction.	Jyeshṭha. Week-day. Month. Day.	Jyeshṭha. Fraction.	Āshāḍha. Week-day. Month. Day.	Āshāḍha. Fraction.	Śrāvaṇa. Week-day. Month. Day.	Śrāvaṇa. Fraction.	Bhādrapada. Week-day. Month. Day.	Bhādrapada. Fraction.
4318	1274	1139	24M	·8897	14·0318	8·315	A.D. 1217	6 Ap 7	·92	1 My 7	·45	2 Je 5	·98	4 Jl 5	·51	6 Au 4●	·04
4319	1275	1140	25M	·1485	3·1401	4·472	1218	4 Mr 28	·29	5 Ap 26 / 7 My 26	·82 / ·35	1 Je 24○	·88	3 Jl 24●	·41	4 Au 22	·94
4320	1276	1141	25M	·4072	21·7790	2·605	1219	3 Ap 16	·19	4 My 15	·72	6 Je 14○	·25	7 Jl 13	·78	2 Au 12	·31
4321	1277	1142	24M	·6669	10·8873	26·317	1220	7 Ap 4	·55	2 My 4	·08	3 Je 2●	·61	5 Jl 2	·14	6 Jl 31	·68
4322	1278	1143	24M	·9248	29·5262	24·450	1221	4 Mr 24 / 6 Ap 23	·92 / ·45	7 My 22●	·98	2 Je 21	·51	4 Jl 21	·04	5 Au 19	·57
4323	1279	1144	25M	·1835	18·6345	20·608	1222	3 Ap 12○	·82	5 My 12	·35	6 Je 10	·88	1 Jl 10	·41	2 Au 8	·94
4324	1280	1145	25M	·4423	7·7428	16·765	1223	1 Ap 2○	·18	2 My 1	·72	4 My 31	·25	5 Je 29	·78	7 Jl 29 / 1 Au 27	·31 / ·84
4325	1281	1146	24M	·7010	26·3817	14·898	1224	7 Ap 20	·08	1 My 19	·61	3 Je 18	·14	4 Jl 17	·67	6 Au 16	·20
4326	1282	1147	24M	·9598	15·4900	11·055	1225	4 Ap 9	·45	5 My 8	·98	7 Je 7	·51	2 Jl 7	·04	3 Au 5○	·57
4327	1283	1148	25M	·2185	4·5982	7·213	1226	1 Mr 29	·82	3 Ap 28	·35	4 My 27 / 6 Je 26	·88 / ·41	7 Jl 25○	·94	2 Au 24	·47
4328	1284	1149	25M	·4773	23·2371	5·346	1227	7 Ap 17	·71	2 My 17	·24	3 Je 15	·78	5 Jl 15●○	·31	6 Au 13	·84
4329	1285	1150	24M	·7361	12·3454	1·503	1228	5 Ap 6	·08	6 My 5	·61	1 Je 4	·14	2 Jl 3●	·67	4 Au 2	·20
4330	1286	1151	24M	·9948	1·4537	25·215	1229	2 Mr 26	·45	3 Ap 24 / 5 My 24○	·98 / ·51	7 Je 28	·04	1 Jl 22	·57	3 Au 21	·10
4331	1287	1152	25M	·2536	20·0926	23·348	1230	1 Ap 14	·35	2 My 13●○	·88	4 Je 12	·41	5 Jl 11	·94	7 Au 10	·47
4332	1288	1153	25M	·5123	9·2009	19·506	1231	5 Ap 3	·71	7 My 3	·24	1 Je 1	·77	3 Jl 1	·30	4 Jl 30	·84
4333	1289	1154	24M	·7711	27·8398	17·689	1232	4 Ap 21●	·61	6 My 21	·14	7 Je 19	·67	2 Jl 19	·20	3 Au 17	·73
4334	1290	1155	25M	·0298	16·9481	13·796	1233	1 Ap 10	·98	3 My 10	·51	5 Je 9	·04	6 Jl 8	·57	1 Au 7	·10
4335	1291	1156	25M	·2886	6·0564	9·953	1234	6 Mr 31	·34	7 Ap 29	.88	2 My 29	·41	3 Je 27 / 5 Jl 27	·94 / ·47	7 Au 26●○	·00
4336	1292	1157	25M	·5473	24·6953	8·087	1235	5 Ap 19	·24	6 My 18	·77	1 Je 17	·30	2 Jl 16	·83	4 Au 15●	·36
4337	1293	1158	24M	·8061	13·8036	4·244	1236	2 Ap 7	·61	4 My 7	·14	5 Je 5	·67	7 Jl 5○	·20	1 Au 3●	·73
4338	1294	1159	25M	·0649	2·9119	0·401	1237	6 Mr 27	·98	1 Ap 26 / 3 My 26	·51 / ·04	4 Je 24○	·57	6 Jl 24	·10	7 Au 22	·63
4339	1295	1160	25M	·3236	21·5508	26·089	1238	5 Ap 15	·87	7 My 15	·40	1 Je 13○	·94	3 Jl 13	·47	5 Au 12	·00
4340	1296	1161	25M	·5824	10·6591	22·246	1239	3 Ap 5	·24	4 My 4	·77	6 Je 3●	·30	7 Jl 2	·83	2 Au 1	·36
4341	1297	1162	24M	·8411	29·2980	20·379	1240	7 Mr 24 / 2 Ap 23○	·61 / ·14	3 My 22●	·67	5 Je 21	·20	6 Jl 20	·73	1 Au 19	·26
4342	1298	1163	25M	·0999	18·4063	16·537	1241	6 Ap 12○	·51	1 My 12	·04	2 Je 10	·57	4 Jl 10	·10	5 Au 8	·63
4343	1299	1164	25M	·3586	7·5146	12·694	1242	3 Ap 1	·87	5 My 1	·40	6 My 30	·93	1 Je 29	·46	3 Jl 29 / 4 Au 27	·00 / ·53
4344	1300	1165	25M	·6174	26·1634	10·827	1243	2 Ap 20	·77	4 My 20	·30	5 Je 18	·83	7 Jl 18	·36	1 Au 16○	·89
4345	1301	1166	24M	·8762	15·2617	6·984	1244	7 Ap 9	·14	1 My 8	·67	3 Je 7	·20	4 Jl 6	·73	6 Au 5○	·26
4346	1302	1167	25M	·1349	4·3700	3·143	1245	4 Mr 29	·50	6 Ap 28	·03	7 My 27 / 2 Je 26	·57 / ·10	3 Jl 25●○	·63	5 Au 24	·16
4347	1303	1168	25M	·3937	23·0089	1·275	1246	3 Ap 17	·40	4 My 16	·93	6 Je 15	·46	7 Jl 14	·99	2 Au 13	·52
4348	1304	1169	25M	·6524	12·1172	24·987	1247	7 Ap 6	·77	2 My 6	·30	3 Je 4○	·83	5 Jl 4●	·36	6 Au 2	·89
4349	1305	1170	24M	·9112	1·2255	21·144	1248	5 Mr 26	·14	6 Ap 24 / 1 My 24●○	·67 / ·20	2 Je 22	·73	4 Jl 22	·26	5 Au 20	·79
4350	1306	1171	25M	·1699	19·8644	19·277	1249	4 Ap 14	·03	5 My 13●	·56	7 Je 12	·09	1 Jl 11	·63	3 Au 10	·16
4351	1307	1172	25M	·4287	8·9727	15·434	1250	1 Ap 3○	·40	2 My 2●	·93	4 Je 1	·46	5 Je 30	·99	7 Jl 30	·52
4352	1308	1173	25M	·6875	27·6117	13·568	1251	7 Ap 22	·30	1 My 21	·83	3 Je 20	·36	4 Jl 19	·89	6 Au 18	·42
4353	1309	1174	24M	·9462	16·7199	9·725	1252	4 Ap 10	·67	6 My 10	·20	7 Je 8	·73	2 Jl 8	·26	3 Au 6	·79
4354	1310	1175	25M	·2050	5·8282	5·883	1253	2 Mr 31	·03	3 Ap 29	·56	5 My 29	·09	6 Je 27 / 1 Jl 27	·62 / ·15	2 Au 25	·69
4355	1311	1176	25M	·4637	24·4671	4·015	1254	7 Ap 18	·93	2 My 18	·46	3 Je 16	·99	5 Jl 16○	·52	7 Au 15	·05
4356	1312	1177	25M	·7225	13·5754	0·173	1255	5 Ap 8	·30	6 My 7	·83	1 Je 6	·36	2 Jl 5○	·89	4 Au 4	·42
4357	1313	1178	24M	·9812	2·6837	23·885	1256	2 Mr 27	·66	4 Ap 26 / 5 My 25	·19 / ·73	7 Je 24●○	·26	1 Jl 23	·79	3 Au 22	·32
4358	1314	1179	25M	·2400	21·3226	22·018	1257	1 Ap 15	·56	3 My 15	·09	4 Je 13	·62	6 Jl 13	·15	7 Au 11	·68
4359	1315	1180	25M	·4987	10·4309	18·175	1258	5 Ap 4	·93	7 My 4○	·46	1 Je 2●	·99	3 Jl 2	·52	5 Au 1	·05
4360	1316	1181	25M	·7575	29·0698	16·308	1259	4 Ap 23○	·83	6 My 23	·36	7 Je 21	·89	2 Jl 21	·42	3 Au 19	·95
4361	1317	1182	25M	·0163	18·1781	12·466	1260	2 Ap 12●	·19	3 My 11	·72	5 Je 10	·25	6 Jl 9	·79	1 Au 8	·32
4362	1318	1183	25M	·2750	7·2864	8·623	1261	6 Ap 1●	·56	1 My 1	·09	2 My 30	·62	4 Je 29	·15	5 Jl 28 / 7 Au 27○	·68 / ·21
4363	1319	1184	25M	·5338	29·9252	6·756	1262	5 Ap 20	·46	6 My 19	·99	1 Je 18	·52	3 Jl 18	·05	4 Au 16●○	·58
4364	1320	1185	25M	·7925	15·0385	2·913	1263	2 Ap 9	·83	4 My 9	·36	5 Je 7	·89	7 Jl 7	·42	1 Au 5○	·95
4365	1321	1186	25M	·0513	4·1418	26·625	1264	7 Mr 29	·19	1 Ap 27	·72	3 My 27 / 4 Je 25	·25 / ·78	6 Jl 25	·31	7 Au 23	·85
4366	1322	1187	25M	·3100	22·7807	24·758	1265	6 Ap 17	·09	7 My 16	·62	2 Je 15○	·15	3 Jl 14	·68	5 Au 13	·21
4367	1323	1188	25M	·5688	11·8390	20·916	1266	3 Ap 6	·46	4 My 5	·99	6 Je 4○	·52	1 Jl 4	·05	2 Au 2	·58
4368	1324	1189	25M	·8276	0·9973	17·073	1267	7 Mr 26	·82	2 Ap 25 / 3 My 24●○	·35 / ·89	5 Je 23	·42	6 Jl 22	·95	1 Au 21	·48
4369	1325	1190	25M	·0863	19·6362	15·206	1268	6 Ap 13○	·72	1 My 13	·25	2 Je 11	·78	4 Jl 11	·31	5 Au 9	·84
4370	1326	1191	25M	·3451	8·7445	11·363	1269	4 Ap 3○	·08	5 My 2	·62	7 Je 1	·15	1 Je 30	·68	3 Jl 30	·21
4371	1327	1192	25M	·6038	27·3804	9·497	1270	2 Ap 21	·99	4 My 21	·52	6 Je 20	·05	7 Jl 19	·58	2 Au 18	·11

N.B.—For tithis by other siddhāntas, add to the above algebraically as follows :—

Sūrya siddhānta—*cont.*

	Āśvina.			Kārttika.			Mārgaśīrsha.			Pausha.		A.D.	Māgha.			A.D.	Phālguna.			Chaitra.		
	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.
	7	S	2	·57	2	O	2	·10	3	O	31	·64	5	N	30	·17		6	D	29○	·70	18	1	Jr	28●	·23	2	F	26	·76
	6	S	21	·47	1	O	21	·00	2	N	19	·53	4	D	19○	·06	19	5	Jr	17	·59			7	F	16	·12	1	Mr	17	·66
	3	S	10	·84	5	O	10	·37	6	N	8	·90	1	D	8○	·43	20	2	Jr	6	·96			4	F	5	·49	6	Mr	6	·02
	1	Au	30	·21	2	S	28	·74	4	O	28	·27	5	N	26	·80		7	D	26	·33	21	1	Jr	24	·86	3	F	23	·39
	7	S	18	·10	1	O	17○	·63	3	N	16	·16	4	D	15	·70	22	6	Jr	14	·23			7	F	12	·76	2	Mr	14	·29
	4	S	7	·47	6	O	7○	·00	7	N	5	·53	2	D	5	·06	23	3	Jr	3	·59			5	F	2	·12	6	Mr	3	·65
	3	S	26●○	·37	4	O	25	·90	6	N	24	·43	7	D	23	·96	24	2	Jr	22	·49			4	F	21	·02	5	Mr	21	·55
	7	S	14	·74	2	O	14	·27	3	N	12	·80	5	D	12	·33	25	6	Jr	10	·86			1	F	9○	·39	2	Mr	10	·92
	5	S	4	·10	6	O	3	·63	1	N	2	·16	2	D	1	·69		4	D	31	·22	26	5	Jr	29○	·76	7	F	28●	·29
	4	S	23	·00	5	O	22	·53	7	N	21	·06	1	D	20	·59	27	3	Jr	19●○	·12			4	F	17	·65	6	Mr	19	·18
	1	S	12	·37	2	O	11	·90	4	N	10	·43	5	D	9	·96	28	7	Jr	8	·49			2	F	7	·02	3	Mr	7	·55
	5	Au	31	·73	7	S	30	·26	1	O	29	·80	3	N	28○	·33		4	D	27●	·86	29	6	Jr	26	·39	7	F	24	·92
	4	S	19	·63	6	O	19	·16	7	N	17○	·69	2	D	17	·22	30	3	Jr	15	·75			5	F	14	·28	6	Mr	15	·81
	2	S	9	·00	3	O	8	·53	5	N	7○	·06	6	D	6	·59	31	1	Jr	5	·12			2	F	3	·65	4	Mr	5	·18
	6	Au	29	·37	2	O	27	·43	3	N	25	·96	5	D	25	·49	32	7	Jr	24	·02			1	F	22	·55	3	Mr	23○	·08
	7	S	27	·90													33	4	Jr	12	·39			5	F	10	·92	7	Mr	12○	·45
	5	S	16○	·26	6	O	15	·79	1	N	14	·32	2	D	13	·86	34	1	Jr	1	·75			3	Jr	31	·28	4	Mr	1○	·81
	2	S	5○	·63	4	O	5●	·16	5	N	3	·69	7	D	3	·22	35	7	Jr	20	·65			2	F	19●	·18	3	Mr	20	·71
	1	S	24	·53	3	O	24	·06	4	N	22	·59	6	D	22	·12	36	5	Jr	10○	·02			6	F	8	·55	1	Mr	9	·08
	5	S	13	·90	7	O	13	·43	1	N	11	·96	3	D	11	·49		2	D	29○	·38	37	3	Jr	27	·92	5	F	26	·45
	3	S	2	·26	4	O	1	·79	6	O	31	·32	7	N	29	·85								2	F	15	·81	4	Mr	17	·34
	2	S	21	·16	3	O	20	·69	5	N	19	·22	6	D	18●○	·75	38	1	Jr	17	·28			7	F	5	·18	1	Mr	6	·71
	6	S	10	·53	1	O	10	·06	2	N	8	·59	4	D	8●	·12	39	5	Jr	6	·65	40	4	Jr	25	·55	6	F	24	·08
	3	Au	30	·89	5	S	29	·42	6	O	28○	·95	1	N	27●	·49		3	D	27	·02			3	F	12	·44	4	Mr	13	·97
	2	S	17	·79	4	O	17○	·32	5	N	15	·85	7	D	15	·38	41	1	Jr	13	·91			7	F	1	·81	2	Mr	3	·34
	7	S	7	·16	1	O	6●○	·69	3	C	5	·22	4	D	4	·75	42	6	Jr	3	·28			6	F	20○	·71	1	Mr	22●	·24
	6	S	26●	·06	7	O	25	·59	2	N	24	·12	3	D	23	·65	43	5	Jr	22	·18			4	F	10○	·08	5	Mr	10	·61
	3	S	15	·42	4	O	14	·95	6	N	13	·48	1	D	13	·01	44	2	Jr	11	·55	45	1	Jr	29○	·44	2	F	27	·97
	7	S	3	·79	2	O	3	·32	3	N	1	·85	5	D	1	·38		6	D	30	·91			7	F	17	·34	1	Mr	18	·87
	6	S	22	·69	1	O	22	·22	2	N	20	·75	4	D	20	·28	46	5	Jr	18●	·81			4	F	6	·71	6	Mr	8	·24
	4	S	12	·05	5	O	11	·59	7	N	10	·12	1	D	9○	·65	47	3	Jr	8	·18	48	2	Jr	27	·07	3	F	25	·61
	1	S	1	·42	2	S	30	·95	4	O	30	·48	6	N	29○	·01		7	D	28	·54			7	F	13	·97	2	Mr	15	·50
	7	S	19	·32	1	O	18	·85	3	N	17○	·38	4	D	16	·91	49	6	Jr	15	·44			5	F	3	·34	6	Mr	4	·87
	4	S	8	·69	6	O	8	·22	7	N	6●	·75	2	D	6	·28	50	3	Jr	4	·81			4	F	22	·24	5	Mr	23○	·77
	2	Au	29	·05	5	O	27	·11	6	N	25	·65	1	D	25	·18	51	2	Jr	23	·71			1	F	11	·60	3	Mr	12○	·13
	3	S	27○	·58													52	7	Jr	13	·07			5	Jr	30	·97	7	Mr	1●	·50
	7	S	16○	·95	2	O	16	·48	4	N	15	·01	5	D	14	·54	53	4	Jr	1	·44			4	F	18	·87	6	Mr	20	·40
	5	S	5○	·32	6	O	4	·85	1	N	3	·38	2	D	2	·91	54	3	Jr	20○	·34			2	F	8	·24	3	Mr	9	·77
	4	S	24	·22	5	O	23	·75	7	N	22	·28	1	D	21	·81	55	7	Jr	9●○	·71	56	6	Jr	28	·60	1	F	27	·13
	1	S	13	·58	3	O	13	·11	4	N	11	·64	6	D	11	·17		5	D	30○	·07			5	F	15	·50	7	Mr	17	·03
	5	S	2	·95	7	O	2	·48	2	N	1	·01	3	N	30	·54	57	3	Jr	16	·97			2	F	4	·87	4	Mr	6	·40
	4	S	20	·85	6	O	20	·38	7	N	18	·91	2	D	18	·44	58	1	Jr	6	·34	59	7	Jr	25	·23	1	F	23	·77
	2	S	10	·21	3	O	9	·75	5	N	8○	·28	6	D	7	·81		5	D	26	·70						3	Mr	25	·30
	6	Au	30	·58	1	S	29	·11	4	N	27	·17					60	4	Jr	14	·60			6	F	13	·13	7	Mr	13	·66
					2	O	28○	·64									61	1	Jr	2	·97			3	F	1	·50	5	Mr	3○	·03
	5	S	18	·48	7	O	18○	·01	1	N	16	·54	3	D	16	·07	62	7	Jr	21	·87			2	F	20○	·40	3	Mr	21	·98
	2	S	6	·85	4	O	6●	·38	5	N	4	·91	7	D	4	·44	63	5	Jr	11	·23			6	F	9○	·76	1	Mr	11	·29
	1	S	25●	·74	3	O	25	·27	4	N	23	·81	6	D	23	·34		2	D	31	·60	64	4	Jr	30	·13	5	F	28	·66
	6	S	15	·11	7	O	14	·64	2	N	13	·17	3	D	12	·70	65	1	Jr	18●	·50			3	F	17	·03	4	Mr	18	·56
	3	S	4	·48	5	O	4	·01	6	N	2	·54	1	D	2	·07	66	5	Jr	7●	·87			7	F	6	·40	1	Mr	7	·93
	2	S	22	·38	3	O	21	·91	5	N	20	·44	6	D	19○	·97		3	D	28	·23	67	4	Jr	26	·76	6	F	25	·29
	6	S	11	·74	1	O	11	·27	2	N	9	·80	4	D	9○	·33	68	2	Jr	16	·13			3	F	14	·66	5	Mr	15	·19
	4	S	1	·11	5	S	30	·64	7	O	30	·17	1	N	28○	·70	69	6	Jr	4	·50			1	F	3	·03	2	Mr	4	·56
	3	S	20	·01	4	O	19	·54	6	N	18	·07	7	D	17	·60	70	5	Jr	23	·39			6	F	21	·93	1	Mr	23●○	·46
	7	S	8	·37	1	O	7○	·91	3	N	6●	·44	4	D	5	·97	71	2	Jr	12	·76			4	F	11	·29	5	Mr	12	·82
	4	Au	28	·74	7	O	26	·80	2	N	25	·33	3	D	24	·86														
	6	S	27○	·27																										
	3	S	16○	·64	5	O	16	·17	6	N	14	·70	1	D	14	·23														

Pausha Kshaya

(1) for Ārya siddhānta +·02; (2) for Brahmo siddhānta —·07; (3) for Siddhānta Śirōmaṇi —·01.

TABLE II.—

Kaliyuga.	Vikrama era.	Śaka era.	Commencement of solar year. Month and day A.D.	Commencement of solar year. Fraction of day.	First new moon in solar year.	Anomaly of first new moon.	Christian era.	Vaiśākha. Week-day.	Vaiśākha. Month.	Vaiśākha. Day.	Vaiśākha. Fraction.	Jyeshṭha. Week-day.	Jyeshṭha. Month.	Jyeshṭha. Day.	Jyeshṭha. Fraction.	Āshāḍha. Week-day.	Āshāḍha. Month.	Āshāḍha. Day.	Āshāḍha. Fraction.	Śrāvana. Week-day.	Śrāvana. Month.	Śrāvana. Day.	Śrāvana. Fraction.	Bhādrapada. Week-day.	Bhādrapada. Month.	Bhādrapada. Day.	Bhādrapada. Fraction.
							A.D.																				
4372	1328	1193	25M	·8626	16·4917	5·654	**1271**	7	Ap	11	·35	1	My	10	·88	3	Je	9	·41	4	Jl	8	·95	6	Au	7	·48
4373	1329	1194	25M	·1213	5·6000	1·811	**1272**	4	Mr	30	·72	6	Ap	29	·25	7 / 2	My / Je	28 / 27	·78 / ·31	3	Jl	26○	·84	5	Au	25●	·37
4374	1330	1195	25M	·3801	24·2389	27·493	**1273**	3	Ap	18	·62	5	My	18	·15	6	Je	16	·68	1	Jl	16○	·21	2	Au	14	·74
4375	1331	1196	25M	·6889	13·3472	23·656	**1274**	7	Ap	7	·99	2	My	7	·52	4	Je	6	·05	5	Jl	5●○	·58	7	Au	4	·11
4376	1332	1197	25M	·8976	2·4555	19·814	**1275**	5	Mr	28	·35	6 / 1	Ap / My	26 / 26	·88 / ·41	2	Je	24●	·94	4	Jl	24	·47	6	Au	23	·01
4377	1333	1198	25M	·1564	21·0944	17·947	**1276**	4	Ap	15	·25	5	My	14○	·78	7	Je	13	·31	1	Jl	12	·84	3	Au	11	·37
4378	1334	1199	25M	·4151	10·2027	14·104	**1277**	1	Ap	4	·62	3	My	4○	·15	4	Je	2	·68	6	Jl	2	·21	7	Jl	31	·74
4379	1335	1200	25M	·6739	28·8416	12·237	**1278**	7	Ap	23	·51	2	My	23	·05	3	Je	21	·58	5	Jl	21	·11	6	Au	19	·64
4380	1336	1201	25M	·9336	17·9498	8·395	**1279**	4	Ap	12	·88	6	My	12	·41	7	Je	10	·94	2	Jl	10	·47	4	Au	9	·00
4381	1337	1202	25M	·1914	7·0581	4·552	**1280**	2	Ap	1●	·25	3	Ap	30	·78	5	My	30	·31	6 / 1	Je / Jl	28 / 28	·84 / ·37	2	Au	26○	·90
4382	1338	1203	25M	·4501	25·6970	2·685	**1281**	1	Ap	20	·15	2	My	19	·68	4	Je	18	·21	5	Jl	17	·74	7	Au	16○	·27
4383	1339	1204	25M	·7089	14·8053	26·397	**1282**	5	Ap	9	·51	7	My	9	·04	1	Je	7	·57	3	Jl	7	·11	4	Au	5●	·64
4384	1340	1205	25M	·9677	3·9136	22·554	**1283**	2	Mr	29	·88	4	Ap	28	·41	5 / 7	My / Je	27 / 26○	·94 / ·47	2	Jl	26	·00	3	Au	24	·53
4385	1341	1206	25M	·2264	22·5325	20·688	**1284**	1	Ap	16	·78	3	My	16	·31	4	Je	14●○	·84	6	Jl	14	·37	7	Au	12	·90
4386	1342	1207	25M	·4852	11·6808	16·845	**1285**	6	Ap	6	·15	7	My	5	·68	2	Je	4○	·21	3	Jl	3	·74	5	Au	2	·27
4387	1343	1208	25M	·7439	0·7691	13·002	**1286**	3 / 5	Mr / Ap	26 / 25○	·51 / 04	6	My	24	·57	1	Je	23	·10	2	Jl	22	·63	4	Au	21	·17
4388	1344	1209	26M	·0027	19·4080	11·135	**1287**	2	Ap	14○	·41	3	My	13	·94	5	Je	12	·47	7	Jl	12	·00	1	Au	10	·53
4389	1345	1210	25M	·2614	8·5163	7·292	**1288**	6	Ap	2○	·78	1	My	2	·31	2	My	31	·84	4	Je	30	·37	5 / 7	Jl / Au	29 / 28	·90 / ·43
4390	1346	1211	25M	·5202	27·1552	5·426	**1289**	5	Ap	21	·67	7	My	21	·21	1	Je	19	·74	3	Jl	19	·27	4	Au	17	·80
4391	1347	1212	25M	·7790	16·2635	1·583	**1290**	3	Ap	11	·04	4	My	10	·57	6	Je	9	·10	7	Jl	8	·63	2	Au	7○	·16
4392	1348	1213	26M	·0377	5·3718	25·295	**1291**	7	Mr	31	·41	2	Ap	30	·94	3 / 5	My / Je	29 / 28	·47 / ·00	6	Jl	27○	·53	1	Au	26●	·06
4393	1349	1214	25M	·2965	24·0107	23·428	**1292**	6	Ap	18	·31	7	My	17	·84	2	Je	16	·37	3	Jl	15○	·90	5	Au	14	·43
4394	1350	1215	25M	·5552	13·1190	19·585	**1293**	3	Ap	7	·67	5	My	7	·20	6	Je	5	·73	1	Jl	5●	·27	2	Au	3	·80
4395	1351	1216	25M	·8140	2·2273	15·744	**1294**	1 / 4	Ap / My	26 / 26○	·04	5	Je	24●	·57 / ·10	7	Jl	24	·63	1	Au	22	·16	1	Au	22	·69
4396	1352	1217	26M	·0727	20·8662	13·876	**1295**	6	Ap	15	·94	1	My	15○	·47	3	Je	14	·00	4	Jl	13	·53	6	Au	12	·06
4397	1353	1218	25M	·3315	9·9745	10·033	**1296**	4	Ap	4	·31	5	My	3○	·84	7	Je	2	·37	1	Jl	1	·90	3	Jl	31	·43
4398	1354	1219	25M	·5902	28·6133	8·166	**1297**	3	Ap	23●	·20	4	My	22	·73	6	Je	21	·26	7	Jl	20	·79	2	Au	19	·33
4399	1355	1220	25M	·8490	17·7216	4·324	**1298**	7	Ap	12	·57	2	My	12	·10	3	Je	10	·63	5	Jl	10	·16	6	Au	8	·69
4400	1356	1221	26M	·1078	6·8299	0·481	**1299**	4	Ap	1	·94	6	My	1	·47	1	My	31	·00	2 / 4	Je / Jl	29 / 29	·53 / ·06	5	Au	27●○	·59
4401	1357	1222	25M	·3665	25·4688	26·169	**1300**	3	Ap	19	83	5	My	19	·37	6	Je	17	·90	1	Jl	17	·43	2	Au	15●	·96
4402	1358	1223	25M	·6253	14·5771	22·326	**1301**	1	Ap	9	·20	2	My	8	·73	4	Je	7	·26	5	Jl	6○	·79	7	Au	5●	·32
4403	1359	1224	25M	·8840	3·6854	18·483	**1302**	5	Mr	29	·57	7	Ap	28	·10	1 / 3	My / Je	27 / 26●○	·63 / ·16	4	Jl	25	·69	6	Au	24	·22
4404	1360	1225	26M	·1428	22·3243	16·616	**1303**	4	Ap	17	·47	6	My	17	·00	7	Je	15●○	·53	2	Jl	15	·06	3	Au	13	·59
4405	1361	1226	25M	·4015	11·4326	12·774	**1304**	1	Ap	5	·83	3	My	5○	·36	4	Je	3●	·90	6	Jl	3	·43	7	Au	1	·96
4406	1362	1227	25M	·6803	0·5409	8·231	**1305**	6 / 7	Mr / Ap	26 / 24○	·20 / ·73	2	My	24	·26	3	Je	22	·79	5	Jl	22	·32	6	Au	20	·85
4407	1363	1228	25M	·9191	19·1798	7·064	**1306**	5	Ap	14○	·10	6	My	13	·63	1	Je	12	·16	2	Jl	11	·69	4	Au	10	·22
4408	1364	1229	26M	·1778	8·2881	3·221	**1307**	2	Ap	3●	·47	4	My	3	·00	5	Je	1	·53	7	Jl	1	·06	1 / 8	Jl / Au	30 / 29	·59 / ·12
4409	1365	1230	25M	·4386	28·9270	1·355	**1308**	1	Ap	21	·36	2	My	20	·89	4	Je	19	·43	5	Jl	18	·96	7	Au	17○	·49
4410	1366	1231	25M	·6953	16·0353	25·067	**1309**	5	Ap	10	·73	7	My	10	·26	1	Je	8	·79	3	Jl	8	·32	4	Au	6○	·85
4411	1367	1232	25M	·9541	5·1436	21·224	**1310**	3	Mr	31	·10	4	Ap	29	·63	6 / 7	My / Je	29 / 27	·16 / ·69	2	Jl	27●○	·22	3	Au	25	·75
4412	1368	1233	26M	·2128	23·7825	19·357	**1311**	2	Ap	19	·00	3	My	18	·53	5	Je	17	·06	6	Jl	16	·59	1	Au	15	·12
4413	1369	1234	25M	·4716	12·8908	15·514	**1312**	6	Ap	7	·36	7	My	6	·89	2	Je	5○	·42	3	Jl	4●	·96	5	Au	3	·49
4414	1370	1235	25M	·7304	1·9991	11·672	**1313**	3	Mr	27	·73	5 / 6	Ap / My	28 / 25○	26 / ·79	1	Je	24	·32	2	Jl	23	·85	4	Au	22	·38
4415	1371	1236	25M	·9892	20·6380	9·805	**1314**	2	Ap	15	·63	4	My	15●○	·16	5	Je	13	·69	7	Jl	13	·22	1	Au	11	·75
4416	1372	1237	26M	·2479	9·7463	5·962	**1315**	7	Ap	5○	·00	1	My	4●	·53	3	Je	3	·06	4	Jl	2	·59	6	Au	1	·12
4417	1373	1238	25M	·5066	28·3851	4·095	**1316**	5	Ap	22	·89	7	My	22	·42	1	Je	20	·95	3	Jl	20	·48	5	Au	19	·02
4418	1374	1239	25M	·7654	17·4934	0·254	**1317**	3	Ap	12	·26	4	My	11	·79	6	Je	10	·32	7	Jl	9	·85	2	Au	8	·38
4419	1375	1240	26M	·0241	6·6017	23·294	**1318**	7	Ap	1	·63	2	My	1	·16	3	My	30	·69	5 / 6	Je / Jl	29 / 28	·22 / ·75	1	Au	27	·28
4420	1376	1241	26M	·2829	25·2406	22·098	**1319**	6	Ap	20	·53	1	My	20	·06	2	Je	18	·59	4	Jl	18○	·12	5	Au	16●	·65
4421	1377	1242	25M	·5416	14·3489	18·255	**1320**	3	Ap	8	·89	5	My	8	·42	6	Je	6	·95	1	Jl	6○	·48	3	Au	5	·01
4422	1378	1243	25M	·8004	3·4572	14·412	**1321**	1	Mr	29	·26	2	Ap	27	·79	4 / 5	My / Je	27 / 25●○	·32 / ·85	7	Jl	25	·38	1	Au	23	·91
4423	1379	1244	26M	·0591	22·0961	12·545	**1322**	7	Ap	17	·16	1	My	16	·69	3	Je	15	·22	4	Jl	14	·75	6	Au	13	·28
4424	1380	1245	26M	·3179	11·2044	8·702	**1323**	4	Ap	6	·52	6	My	6○	·06	7	Je	4	·59	2	Jl	4	·12	3	Au	2	·65
4425	1381	1246	25M	·5767	0·3127	4·860	**1324**	1 / 3	Mr / Ap	25 / 24●○	·89 / ·42	4	My	23	·95	6	Je	22	·48	1	Jl	22	·01	2	Au	20	·54
4426	1382	1247	25M	·8354	18·9518	2·994	**1325**	7	Ap	13	·79	2	My	13	·32	3	Je	11	·85	5	Jl	11	·38	6	Au	9	·91

N.B.—For tithis by other siddhāntas, add to the above algebraically as follows :—

Sūrya siddhānta—*cont.*

Āśvina.				Kārttika.				Mārgaśīrsha.				Pausha.				A.D.	Māgha.			A.D.	Phālguna.			Chaitra.			
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
1	S	6●	·01	2	O	5	·54	4	N	4	·07	5	D	3	·60	**72**	7	Jr	2	·13	1	Jr	31○	·66	3	Mr	1●	·19
6	S	23	·90	1	O	23	·43	2	N	21	·97	4	D	21	·50	**73**	6	Jr	20○	·03	7	F	18	·56	2	Mr	20	·09
4	S	13	·27	5	O	12	·80	7	N	11	·33	1	D	10	·86	**74**	3	Jr	9○	·39	4	F	7	·32	6	Mr	9	·45
1	S	2	·64	3	O	2	·17	4	O	31	·70	6	N	30	·23		7	D	29	·76	**75**	2	Jr	28	·29	3	F	26	·82
7	S	21	·54	2	O	21	·07	3	N	19○	60	5	D	19	·13	**76**	6	Jr	17	·66		1	F	16	·19	2	Mr	16	·7 2
4	S	9	·90	6	O	9	·43	7	N	7○	·96	2	D	7	·49	**77**	4	Jr	6	·03		5	F	4	·56	7	Mr	6	·09
2	Au	30	·27	3	S	28	·80	6	N	26	·86	**Pausha Kshaya**					1	D	26	·39	**78**	2	Jr	24	·92	5	Mr	24	·98
				5	O	28●○	·33															4	F	23	·45				
1	S	18	·17	2	O	17	·70	4	N	16	·23	5	D	15	·76	**79**	7	Jr	14	·29		1	F	12	·82	3	Mr	14○	·35
5	S	7○	·53	7	O	7	·07	1	N	5	·60	3	D	5	·13	**80**	4	Jr	3	·66		6	F	2	·19	7	Mr	2○	·72
4	S	25	·43	5	O	24	·96	7	N	23	·49	2	D	23	·02	**81**	3	Jr	21	·55		5	F	20●○	·09	6	Mr	21	·62
1	S	14	·80	3	O	14	·33	4	N	12	·86	6	D	12	·39	**82**	7	Jr	10	·92		2	F	9●	·45	3	Mr	10	·98
6	S	4	·17	7	O	3	·70	2	N	2	·23	3	D	1	·76		5	D	31○	·29	**83**	6	Jr	29●	·82	1	F	28	·35
5	S	23	·06	6	O	22	·59	1	N	21	·13	2	D	20○	·66	**84**	4	Jr	19	·19		5	F	17	·72	7	Mr	18	·25
2	S	11	·43	3	O	10	·96	5	N	9	·49	7	D	9○	·02	**85**	1	Jr	7	·55		3	F	6	·08	4	Mr	7	·61
6	Au	31	·80	1	S	30	·33	2	O	29	·86	4	N	28●	·39		5	D	27	·92	**86**	7	Jr	26	·45	1	F	24	·98
5	S	19	·70	7	O	19○	·23	1	N	17	·76	3	D	17	·29	**87**	4	Jr	15	·82		6	F	14	·35	7	Mr	15	·88
3	S	9	·06	5	O	8○	·59	6	N	7●	·12	7	D	6	·65	**88**	2	Jr	5	·19		3	F	3	·72	5	Mr	4	·25
1	S	26○	·96	3	O	26	·49	5	N	25	·02	6	D	24	·55	**89**	1	Jr	23	·08		2	F	21	·61	4	Mr	23●	·14
6	S	16●	·33	7	O	15	·86	2	N	14	·39	3	D	13	·92	**90**	5	Jr	12	·45		6	F	10○	·98	1	Mr	12	·51
3	S	5●	·69	5	O	5	·23	6	N	3	·76	1	D	3	·29	**91**	2	Jr	1	·82		4	Jr	31○	·35	5	Mr	1	·88
2	S	24	·59	4	O	24	·12	5	N	22	·65	7	D	22	·18	**92**	1	Jr	20●○	·71		3	F	19	·25	4	Mr	19	·78
6	S	12	·96	1	O	12	·49	3	N	11	·02	4	D	10	·55	**93**	6	Jr	9●	·08		7	F	7	·61	2	Mr	9	·14
4	S	2	·33	5	O	1	·86	7	O	31	·39	1	N	29○	·92		3	D	29●	·45	**94**	4	Jr	27	·98	6	F	26	·51
3	S	21	·22	4	O	20	·75	6	N	19○	·29	7	D	18	·82	**95**	2	Jr	17	·35		3	F	15	·88	5	Mr	17	·41
7	S	10	·59	2	O	10	·12	3	N	8○	·65	5	D	8	·18	**96**	6	Jr	6	·71		1	F	5	·24	2	Mr	5	·77
4	Au	29	·96	6	S	28	·49	1	O	28●	·02	**Pausha Kshaya**					4	D	26	·08	**97**	5	Jr	24	·61				
								2	N	26	·55											7	F	23	·14	1	Mr	24○	·67
3	S	17○	·86	5	O	17	·39	6	N	15	·92	1	D	15	·45	**98**	2	Jr	13	·98		4	F	12	·51	6	Mr	14○	·04
1	S	7○	·22	2	O	6	·75	4	N	5	·28	5	D	4	·81	**99**	7	Jr	3	·35		1	F	1	·88	3	Mr	3	·41
7	S	26	·12	1	O	25	·65	3	N	24	·18	4	D	23	·71	**13**	6	Jr	22	·24	**00**	7	F	20●	·77	2	Mr	21	·30
4	S	14	·49	6	O	14	·02	7	N	12	·55	2	D	12	·08	**01**	3	Jr	10○	·61		5	F	9	·14	6	Mr	10	·67
1	S	3	·85	3	O	3	·39	4	N	1	·92	6	D	1	·45		7	D	30○	·98	**02**	2	Jr	29	·51	4	F	28	·04
7	S	22	·75	2	O	22	·28	3	N	20	·81	5	D	20○	·34	**03**	6	Jr	18	·87		1	F	17	·41	2	Mr	18	·94
5	S	12	·12	6	O	11	·65	1	N	10	·18	2	D	9●	·71	**04**	4	Jr	8	·24		5	F	6	·77	7	Mr	7	·30
2	Au	31	·49	4	S	30	·02	5	O	29○	·55	7	N	28●	·08		1	D	27	·61	**05**	3	Jr	26	·14	4	F	24	·67
1	S	19	·38	2	O	18○	·92	4	N	17	·45	5	D	16	·98	**06**	7	Jr	15	·51		2	F	14	·04	3	Mr	15	·57
5	S	8	·75	7	O	8○	·28	1	N	6	·81	3	D	6	·34	**07**	4	Jr	4	·87		6	F	3	·40	7	Mr	4	·94
4	S	27	·65	6	O	27	·18	7	N	25	·71	2	D	25	·24	**08**	3	Jr	23	·77		5	F	22○	·30	6	Mr	22	·83
2	S	16	·02	3	O	15	·55	5	N	14	·08	6	D	13	·61	**09**	1	Jr	12	·14		2	F	10○	·67	4	Mr	12	·20
6	S	5	·38	7	O	4	·91	2	N	3	·44	3	D	2	·98	**10**	5	Jr	1	·51		7	Jr	31○	·04	1	Mr	1	·57
5	S	24	·28	6	O	23	·81	1	N	22	·34	2	D	21	·87	**11**	4	Jr	20	·40		5	F	18	·93	7	Mr	20	·47
2	S	13	·65	4	O	13	·18	5	N	11	·71	7	D	11○	·24	**12**	1	Jr	9	·77		3	F	8	·30	4	Mr	8	·83
7	S	2	·02	1	O	1	·55	3	O	31	·08	4	N	29○	·61		6	D	29	·14	**13**	7	Jr	27	·67	2	F	26	·20
5	S	20	·91	7	O	20	·44	1	N	18○	·98	3	D	18	·51	**14**	5	Jr	17	·04		6	F	15	·57	1	Mr	17	·10
3	S	10	·28	4	O	9	·81	6	N	8	·34	7	D	7	·87	**15**	2	Jr	6	·40		3	F	4	·93	5	Mr	6	·46
7	Au	30	·65	2	S	29○	·18	**Margasirā Kshaya**				5	N	27	·24		6	D	26	·77	**16**	1	Jr	25	·30				
				3	O	28●	·71															2	F	23	·83	4	Mr	24○	·36
6	S	17○	·55	1	O	17	·08	2	N	15	·61	4	D	15	·14	**17**	5	Jr	13	·67		7	F	12	·20	1	Mr	13○	·73
3	S	6●○	·91	5	O	6	·44	6	N	4	·97	1	D	4	·50	**18**	3	Jr	3	·04		4	F	1	·57	6	Mr	3	·10
2	S	25●	·61	4	O	25	·34	5	N	23	·87	7	D	23	·40	**19**	1	Jr	21○	·93		3	F	20●	·46	5	Mr	22	·63
7	S	15	·18	1	O	14	·71	3	N	13	·24	4	D	12	·77	**20**	6	Jr	11○	·30		7	F	9●	·83	2	Mr	10	·36
4	S	3	·55	6	O	3	·08	7	N	1	·61	2	D	1	·14		3	D	30○	·67	**21**	5	Jr	29	·20	6	F	27	·73
3	S	22	·44	4	O	21	·97	6	N	20	·50	1	D	20	·04	**22**	2	Jr	18	·57		4	F	17	·10	5	Mr	18	·63
7	S	11	·81	2	O	11	34	3	N	9	·87	5	D	9●	·40	**23**	6	Jr	7	·93		1	F	6	·46	2	Mr	7	·99
5	S	1	·18	6	S	30	·71	1	O	30○	·24	2	N	28	·77		4	D	28	·30	**24**	5	Jr	26	·83	7	F	25	·36
4	S	19	·08	5	O	18○	·61	7	N	17	·14	1	D	16	·67	**25**	3	Jr	15	·20		4	F	13	·73	6	Mr	15	·26
1	S	8	·44	2	O	7●	97	4	N	6	·50	6	D	6	·03	**26**	7	Jr	4	56		2	F	3	·10	3	Mr	4○	·63

(1) for Ārya siddhānta + ·02; (2) for Brahma siddhānta − ·07; and (3) for Siddhānta Śirōmaṇi — ·01.

TABLE II.—

Kaliyuga.	Vikrama era.	Śaka era.	Commencement of solar year. Month and day A.D.	Commencement of solar year. Fraction of day.	First new moon in solar year.	Anomaly of first new moon.	Christian era. A.D.	Vaiśākha. Week-day.	Vaiśākha. Month.	Vaiśākha. Day.	Vaiśākha. Fraction.	Jyeshṭha. Week-day.	Jyeshṭha. Month.	Jyeshṭha. Day.	Jyeshṭha. Fraction.	Āshāḍha. Week-day.	Āshāḍha. Month.	Āshāḍha. Day.	Āshāḍha. Fraction.	Śrāvaṇa. Week-day.	Śrāvaṇa. Month.	Śrāvaṇa. Day.	Śrāvaṇa. Fraction.	Bhāḍrapada Week-day.	Bhāḍrapada Month.	Bhāḍrapada Day.	Bhāḍrapada Fraction.
4427	1383	1248	26M	·0942	8·0599	26·705	**1326**	5	Ap	3●	·16	6	My	2	·69	1	Je	1	·22	2	Je	30	·75	4	Jl	30	·28
																								5	Au	28○	·81
4428	1384	1249	26M	·3528	26·6988	24·838	**1327**	4	Ap	22	·05	5	My	21	·59	7	Je	20	·12	1	Jl	19	·65	3	Au	18○	·18
4429	1385	1250	25M	·6117	15·8071	20·995	**1328**	1	Ap	10	·42	2	My	9	·95	4	Je	8	·48	6	Jl	8	·01	7	Au	6●○	·54
4430	1386	1251	25M	·8705	4·9154	17·153	**1329**	5	Mr	30	·79	7	Ap	29	·32	1	My	28	·85	4	Jl	26●	·91	6	Au	25	·44
																3	Je	27	·88								
4431	1387	1252	26M	·1292	23·5543	15·286	**1330**	4	Ap	18	·69	6	My	18	·22	7	Je	16○	·75	2	Jl	16	·28	3	Au	14	·81
4432	1388	1253	26M	·3880	12·6626	11·443	**1331**	2	Ap	8	·05	3	My	7	·58	5	Je	6○	·11	6	Jl	5	·65	1	Au	4	·18
4433	1389	1254	25M	·6467	1·7709	7·600	**1332**	7	Ap	25	·42	4	Je	24	·01	5	Jl	23	·54	7	Au	22	·07				
								2	My	25●○	·48																
4434	1390	1255	25M	·9055	20·4097	5·734	**1333**	5	Ap	15○	·32	6	My	14	·85	1	Je	13	·38	2	Jl	12	·91	4	Au	11	·44
4435	1391	1256	26M	·1642	9·5180	1·891	**1334**	2	Ap	4○	·69	4	My	4●	·22	5	Je	2	·75	7	Jl	2	·28	1	Jl	31	·81
4436	1392	1257	26M	·4230	28·1569	0·024	**1335**	1	Ap	23	·58	3	My	23	·11	4	Je	21	·64	6	Jl	21	·18	7	Au	19	·71
4437	1393	1258	25M	·6818	17·2652	23·736	**1336**	5	Ap	11	·95	7	My	11	·48	2	Je	10	·01	3	Jl	9	·54	5	Au	8	·07
4438	1394	1259	25M	·9405	6·3735	19·893	**1337**	3	Ap	1	·32	4	Ap	30	·85	6	My	30	·38	7	Je	28	·91	3	Au	26	·97
																				2	Jl	28○	·44				
4439	1395	1260	26M	·1993	25·0124	18·027	**1338**	2	Ap	20	·22	3	My	19	·75	5	Je	18	·28	6	Jl	17○	·81	1	Au	16	·34
4440	1396	1261	26M	·4580	14·1207	14·184	**1339**	6	Ap	9	·58	1	My	9	·11	2	Je	7	·64	4	Jl	7●○	·17	5	Au	5	·71
4441	1397	1262	25M	·7168	8·2290	10·841	**1340**	3	Mr	28	·95	5	Ap	27	·48	7	My	27	·01	3	Jl	25	·07	4	Au	23	·60
																1	Je	25	·54								
4442	1398	1263	25M	·9755	21·8679	8·474	**1341**	2	Ap	16	·85	4	My	16○	·38	5	Je	14	·91	7	Jl	14	·44	1	Au	12	·97
4443	1399	1264	26M	·2343	10·9762	4·632	**1342**	7	Ap	6	·21	1	My	5●○	·75	3	Je	4	·28	4	Jl	3	·81	6	Au	2	·34
4444	1400	1265	26M	·4930	0·0845	0·789	**1343**	4	Mr	26	·58	7	My	24	·64	2	Je	23	·17	3	Jl	22	·70	5	Au	21	·23
								6	Ap	25●	·11																
4445	1401	1266	25M	·7518	18·7234	26·477	**1344**	3	Ap	13	·48	5	My	13	·01	6	Je	11	·54	1	Jl	11	·07	2	Au	9	·60
4446	1402	1267	26M	·0106	7·8317	22·634	**1345**	7	Ap	2	·84	2	My	2	·38	3	My	31	·91	5	Je	30	·44	6	Jl	29	·97
																								1	Au	28○	·50
4447	1403	1268	26M	·2693	26·4706	20·767	**1346**	6	Ap	21	·74	1	My	21	·28	2	Je	19	·81	4	Jl	19	·34	5	Au	17○	·87
4448	1404	1269	26M	·5281	15·5789	16·924	**1347**	4	Ap	11	·11	5	My	10	·64	7	Je	9	·17	1	Jl	8	·70	3	Au	7●	·23
4449	1405	1270	25M	·7868	4·6872	13·082	**1348**	1	Mr	30	·48	3	Ap	29	·01	4	My	28	·54	7	Jl	26●	·60	2	Au	25	·13
																6	Je	27○	·07								
4450	1406	1271	26M	·0456	23·3261	11·215	**1349**	7	Ap	18	·38	1	My	17	·91	3	Je	16○	·44	4	Jl	15	·97	6	Au	14	·50
4451	1407	1272	26M	·3043	12·4344	7·372	**1350**	4	Ap	7	·74	6	My	7	·27	7	Je	5○	·81	2	Jl	5	·34	3	Au	3	·87
4452	1408	1273	26M	·5731	1·5427	3·529	**1351**	2	Mr	28	·11	5	My	26	·17	6	Je	24	·70	1	Jl	24	·23	2	Au	22	·76
								3	Ap	26	·64																
4453	1409	1274	25M	·8219	20·1815	1·663	**1352**	1	Ap	15○	·01	2	My	14	·54	4	Je	13	·07	5	Jl	12	·60	7	Au	11	·13
4454	1410	1275	26M	·0806	9·2898	25·375	**1353**	5	Ap	4○	·38	6	My	3	·91	1	Je	2	·44	2	Jl	1	·97	4	Jl	31	·50
																								6	Au	30	·03
4455	1411	1276	26M	·3394	27·9287	23·508	**1354**	4	Ap	23	·27	5	My	22	·80	7	Je	21	·33	1	Jl	20	·87	3	Au	19	·40
4456	1412	1277	26M	·5981	17·0370	19·665	**1355**	1	Ap	12	·64	3	My	12	·17	4	Je	10	·70	6	Jl	10	·23	7	Au	8○	·76
4457	1413	1278	25M	·8565	6·1453	15·823	**1356**	6	Ap	1	.01	7	Ap	30	·54	2	My	30	.07	3	Jo	28	·60	6	Au	26	·66
																				5	Jl	28○	·13				
4458	1414	1279	26M	·1156	24·7842	13·956	**1357**	4	Ap	19	·91	6	My	19	·44	7	Je	17	·97	2	Jl	17○	·50	4	Au	16	·03
4459	1415	1280	26M	·3744	13·8925	10·113	**1358**	2	Ap	9	·27	3	My	8	·80	5	Je	7	·33	6	Jl	6●	·86	1	Au	5	·39
4460	1416	1281	26M	·6331	3·0008	6·270	**1359**	6	Mr	29	·64	1	Ap	28	·17	4	Je	26●	·23	5	Jl	25	·76	7	Au	24	·29
												2	My	27○	·70												
4461	1417	1282	25M	·8919	21·6397	4·403	**1360**	5	Ap	16	·54	7	My	16○	.07	1	Je	14	·60	3	Jl	14	·13	4	Au	12	·66
4462	1418	1283	26M	·1507	10·7480	0·561	**1361**	2	Ap	5	·90	4	My	5●	·43	5	Je	3	·97	7	Jl	3	·50	2	Au	2	·03
4463	1419	1284	26M	·4094	29·3869	26·248	**1362**	7	Mr	26	·27	3	My	24	·33	4	Je	22	·86	6	Jl	22	·39	7	Au	20	·92
								1	Ap	24●	·80																
4464	1420	1285	26M	·6682	18·4952	22·406	**1363**	6	Ap	14	·17	7	My	13	·70	2	Je	12	·23	3	Ji	11	·76	5	Au	10	·29
4465	1421	1286	25M	·9269	7·6035	18·563	**1364**	3	Ap	2	·54	5	My	2	·07	6	My	31	·60	1	Jl	30	·13	2	Jl	29	·66
																								4	Au	28○	·19
4466	1422	1287	26M	·1857	26·2424	16·696	**1365**	2	Ap	21	·43	3	My	20	·96	5	Je	19	·49	7	Jl	19	·03	1	Au	17	·56
4467	1423	1288	26M	·4444	15·3507	12·853	**1366**	6	Ap	10	·80	1	My	10	·33	2	Je	8	·86	4	Jl	8○	·39	5	Au	6●	·92
4468	1424	1289	26M	·7032	4·4590	9·011	**1367**	4	Mr	31	·17	5	Ap	29	·70	7	My	29	·23	3	Jl	27●	·29	4	Au	25	·82
																1	Je	27○	·76								
4469	1425	1290	25M	·9620	23·0979	7·144	**1368**	3	Ap	18	·07	4	My	17	·60	6	Je	16○	·13	7	Jl	15	·66	2	Au	14	·19
4470	1426	1291	26M	·2207	12·2062	33·301	**1369**	7	Ap	7	·43	1	My	6	·96	3	Je	5●	·49	5	Jl	5	·02	6	Au	3	·55
4471	1427	1292	26M	·4795	1·3144	27·013	**1370**	4	Mr	27	·80	7	My	25	·86	2	Je	24	·39	3	Jl	23	·92	5	Au	22	·45
								6	Ap	26○	·33																
4472	1428	1293	26M	·7382	19·9583	25·146	**1371**	3	Ap	15○	·70	5	My	15	·23	6	Je	13	·76	1	Jl	13	·29	2	Au	11	·82
4473	1429	1294	25M	·9970	9·0616	21·304	**1372**	1	Ap	4	·06	2	My	3	·59	4	Je	2	·13	5	Jl	1	·66	7	Jl	31	·19
																								1	Au	29	·72
4474	1430	1295	26M	·2557	27·7005	19·437	**1373**	6	Ap	22	·96	1	My	22	·49	3	Je	21	·02	4	Jl	20	·55	6	Au	19	·08
4475	1431	1296	26M	·5145	16·8088	15·594	**1374**	4	Ap	12	·33	5	My	11	·86	7	Je	10	·39	1	Jl	9	·92	3	Au	8○	·45
4476	1432	1297	26M	·7733	5·9171	11·751	**1375**	1	Ap	1	·70	3	My	1	·23	4	My	30	·76	6	Je	29	·29	2	Au	27	·35
																				7	Jl	28●○	·82				
4477	1433	1298	26M	·0323	24·5560	9·885	**1376**	7	Ap	19	·59	2	My	19	·12	3	Je	17	·65	5	Jl	17●	·19	6	Au	15	·72
4478	1434	1299	26M	·2908	13·8643	6·042	**1377**	4	Ap	8	·96	6	My	8	·49	1	Je	7○	·02	2	Jl	6●	·55	4	Au	5	·08
4479	1435	1300	26M	·5495	2·7726	2·199	**1378**	2	Mr	29	·33	3	Ap	27	·86	6	Je	25	·92	1	Jl	25	·45	2	Au	23	·98
												5	My	27●○	·39												

N.B.—For tithis by other siddhāntas, add to the above algebraically as follows:—

Sūrya siddhānta—*cont.*

Āśvina.				Kārttika.				Mārgaśīrsha.				Pausha.				A.D.	Māgha.			A.D.	Phālguna.			Chaitra.			
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
7	S	27	·34	1	O	26	·87	3	N	25	·40	4	D	24	·93	**27**	6	Jr	23	·46	1	F	22○	·99	2	Mr	23	·52
4	S	16	·71	6	O	16	·24	7	N	14	·77	2	D	14	·30	**28**	3	Jr	12	·83	5	F	11○	·36	6	Mr	11	·89
2	S	5	·07	3	O	4	·61	5	N	3	·14	6	D	2	·67	**29**	1	Jr	1	·20	2	Jr	30	·73	4	Mr	1	·26
7	S	23	·97	2	O	23	·50	4	N	22	·03	5	D	21○	·56	**30**	7	Jr	20	·09	1	F	18	·63	3	Mr	20	·16
5	S	13	·34	6	O	12	·87	1	N	11	·40	2	D	10○	·93	**31**	4	Jr	9	·46	5	F	7	·99	7	Mr	9	·52
2	S	2	·71	4	O	2	·24	5	O	31	·77	7	N	30●○	·30		1	D	29	·83	3	Jr	28	·36	4	F	26	·89
1	S	20	·60	3	O	20	·14	4	N	18	·67	6	D	18	·20	**33**	7	Jr	16	·73	2	F	15	·26	3	Mr	16	·79
5	S	9	·97	7	O	9○	·50	2	N	8	·03	3	D	7	·56	**34**	5	Jr	6	·09	6	F	4	·62	1	Mr	6	·16
3	Au	30	·34																		3	Jr	24	·99				
4	S	28○	·87	6	O	28	·40	7	N	26	·93			Pausha Kshaya			2	D	26	·46	**35**	5	F	23	·52	7	Mr	25●○	·05
2	S	18○	·24	3	O	17	·77	5	N	16	·30	6	D	15	·83	**36**	1	Jr	14	·36	2	F	12	·89	4	Mr	13	·42
6	S	6●	·60	1	O	6	·13	2	N	4	·66	4	D	4	·20	**37**	5	Jr	2	·73	7	F	1○	·26	1	Mr	2●	·79
5	S	25	·50	7	O	25	·08	1	N	23	·56	3	D	23	·09	**38**	4	Jr	21○	·62	6	F	20	·15	7	Mr	21	·68
2	S	14	·87	4	O	14	·40	5	N	12	·93	7	D	12	·46	**39**	1	Jr	10○	·99	3	F	9	·52	5	Mr	11	·05
7	S	4	24	1	O	3	·77	3	N	2	·30	4	D	1	·83		6	D	31●	·36	**40**	7	Jr	29	·89	2	F	28	·42
6	S	22	·13	7	O	21	·66	2	N	20	·19	3	D	19	·73	**41**	5	Jr	18	·26	6	F	16	·79	1	Mr	18	·32
3	S	11	·50	5	O	11	·03	6	N	9○	·56	7	D	9●	·09	**42**	2	Jr	7	·62	4	F	6	·15	5	Mr	7	·68
7	An	31	·87	2	S	30	·40	3	O	29○	·93	5	N	28	·46		6	D	27	·99	**43**	1	Jr	26	·52	3	F	25	·05
6	S	19	·77	1	O	19●	·30	2	N	17	·83	4	D	17	·36	**44**	5	Jr	15	·89	7	F	14	·42	1	Mr	14	·95
4	S	8○	·13	5	O	7●	·66	7	N	6	·19	1	D	5	·72	**45**	3	Jr	4	·26	4	F	2	·79	6	Mr	4○	·32
3	S	27●	·03	4	O	26	·56	6	N	25	·09	7	D	24	·62	**46**	2	Jr	23	·15	3	F	21●○	·68	5	Mr	23	·21
7	S	16	·40	1	O	15	·93	3	N	14	·46	4	D	13	·99	**47**	6	Jr	12	·52	1	F	11●	·05	2	Mr	12	·58
4	S	5	·76	6	O	5	·30	7	N	3	·83	2	D	3	·36	**48**	3	Jr	1○	·89	5	Jr	31	·42	6	F	29	·95
3	S	23	·66	5	O	23	·19	6	N	21	·72	1	D	21○	·25	**49**	2	Jr	19	·79	4	F	18	·32	5	Mr	19	·85
1	S	13	·03	2	O	12	·56	4	N	11	·09	5	D	10○	·62	**50**	7	Jr	9	·15	1	F	7	·68	3	Mr	9	·21
5	S	2	·40	6	O	1	·93	1	O	31	·46	2	N	29●	·99		4	D	29	·52	**51**	6	Jr	28	·05	7	F	26	·58
4	S	21	·29	5	O	20○	·83	7	N	19	·36	1	D	18	·89	**52**	3	Jr	17	·42	4	F	15	·95	6	Mr	16	·48
1	S	9	·66	3	O	9○	·19	4	N	7	·72	6	D	7	·25	**53**	7	Jr	5	·78	2	F	4	·31	3	Mr	5	·85
7	S	28○	·56	2	O	28	·09	3	N	26	·62	5	D	26	·15	**54**	6	Jr	24	·68	1	F	23	·21	2	Mr	24●	·74
4	S	17●	·93	6	O	17	·46	7	N	15	·99	2	D	15	·52	**55**	4	Jr	14	·05	5	F	12○	·58	7	Mr	14	·11
2	S	7●	·29	3	O	6	·82	5	N	5	·35	6	D	4	·89	**56**	1	Jr	3	·42	2	F	1○	·95	4	Mr	2	·48
1	S	25	·19	2	O	24	·72	4	N	23	·25	5	D	22	·78	**57**	7	Jr	21○	·31	1	F	19	·84	3	Mr	21	·37
5	S	14	·56	7	O	14	·09	1	N	12	·62	3	D	12	·15	**58**	4	Jr	10●	·68	6	F	9	·21	7	Mr	10	·74
2	S	3	·93	4	O	3	·46	5	N	1	·99	7	D	1	·52		2	D	31●	·05	**59**	3	Jr	29	·58	5	F	28	·11
1	S	22	·83	3	O	22	·35	4	N	20○	·88	6	D	20	·41	**60**	7	Jr	18	·95	2	F	17	·48	4	Mr	18	·01
6	S	11	·19	7	O	10	·72	2	N	9○	·25	3	D	8	·78	**61**	5	Jr	7	·31	6	F	5	·84	1	Mr	7	·37
3	Au	31	·56	5	S	30	·09	6	O	29	·62	1	N	28	·15		2	D	27	·68	**62**	4	Jr	26	·21	5	F	24	·74
2	S	19○	·45	3	O	18	·99	5	N	17	·52	7	D	17	·05	**63**	1	Jr	15	·58	3	F	14	·11	4	Mr	15○	·64
6	S	8○	·82	1	O	8	·35	2	N	6	·88	4	D	6	·41	**64**	5	Jr	4	·94	7	F	3	·47	2	Mr	4●○	·01
5	S	26	·72	7	O	26	·25	1	N	24	·78	3	D	24	·31	**65**	4	Jr	22	·84	6	F	21●	·37	7	Mr	22	·90
3	S	16	·09	4	O	15	·62	6	N	14	·15	7	D	13	·68	**66**	2	Jr	12○	·21	3	F	10	·74	5	Mr	12	·27
7	S	5	·45	1	O	4	·98	3	N	3	·51	5	D	3	·05	**67**	6	Jr	1○	·58	1	Jr	31	·11	2	Mr	1	·64
6	S	24	·35	7	O	23	·88	2	N	22	·41	3	D	21●○	·94	**68**	5	Jr	20	·47	7	F	19	·00	1	Mr	19	·53
3	S	12	·72	5	O	12	25	6	N	10	·78	1	D	10	·31	**69**	2	Jr	8	·84	4	F	7	·37	5	Mr	8	·90
1	S	2	·09	2	O	1	·62	4	O	31○	·15	5	N	29●	·68		7	D	29	·21	**70**	1	Jr	27	·74	3	F	26	·27
6	S	20	·98	1	O	20○	·51	3	N	19	·04	4	D	18	·57	**71**	6	Jr	17	·11	7	F	15	·64	2	Mr	17	·17
4	S	10	·35	5	O	9●○	·88	7	N	8	·41	1	D	7	·94	**72**	3	Jr	6	·47	5	F	5	·00	6	Mr	5	·53
3	S	28	·25	4	O	27	·78	6	N	26	·31	7	D	25	·84	**73**	2	Jr	24	·37	3	F	22○	·90	5	Mr	24●	·43
7	S	17●	·61	2	O	17	·15	3	N	15	·58	5	D	15	·21	**74**	6	Jr	13	·74	1	F	12○	·27	2	Mr	13●	·80
4	S	6	·98	6	O	6	·51	1	N	5	·04	2	D	3	·57	**75**	4	Jr	3	·10	5	F	1●○	·63	7	Mr	3	·17
3	S	25	·88	5	O	25	·41	6	N	23	·94	1	D	23	·47	**76**	3	Jr	22	·00	4	F	20	·53	6	Mr	21	·06
1	S	14	·25	2	O	13	·78	4	N	12	·31	5	D	11	·84	**77**	7	Jr	10●	·37	1	F	8	·90	3	Mr	10	·43
5	S	3	·61	7	O	3	·14	1	N	1	·67	3	D	1○	·21		4	D	30●	·74	**78**	6	Jr	29	·27	7	F	27	·80
4	S	22	·51	6	O	22	·04	7	N	20○	·57	2	D	20	·10	**79**	3	Jr	18	·63	5	F	17	·16	6	Mr	18	·69

(1) for Sūrya siddhānta +·03; (2) for Brahma siddhānta −·08; and (3) for Siddhānta Śirōmaṇi −·02.

TABLE II.—

Kaliyuga.	Vikrama era.	Śaka era.	Month and day A.D.	Fraction of day.	Commencement of solar year.	First new moon in solar year.	Anomaly of first new moon.	Christian era.	Vaiśākha.			Jyeshṭha.			Āshāḍha.			Śrāvaṇa.			Bhādrapada.		
								A.D.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
4480	1436	1301	26M	·9038	21·4115	0·332		**1379**	1 Ap	17	·23	2 My	16○	·76	4 Je	15	·29	5 Jl	14	·82	7 Au	13	·35
4481	1437	1302	26M	·0670	10·5198	24·044		**1380**	5 Ap	5	·59	7 My	5●	·12	1 Je	3	·65	3 Jl	3	·18	4 Au	1	·71
4482	1438	1303	26M	·3258	29·1587	22·177		**1381**	2 Mr 25○ 4 Ap 24		·96 ·49	6 My	24	·02	7 Je	22	·55	2 Jl	22	·08	3 Au	20	·61
4483	1439	1304	26M	·5845	18·2670	18·335		**1382**	1 Ap	13	·86	3 My	13	·39	4 Je	11	·92	6 Jl	11	·45	7 Au	9	·98
4484	1440	1305	26M	·8433	7·3753	14·492		**1383**	6 Ap	3	·22	7 My	2	·75	2 Je	1	·29	3 Je	30	·82	5 Jl 30 6 Au 28●		·35 ·88
4485	1441	1306	26M	·1021	26·0142	12·625		**1384**	5 Ap	21	·12	6 My	20	·65	1 Je	19	·18	2 Jl	18○	·71	4 Au	17●	·24
4486	1442	1307	26M	·3608	15·1225	8·782		**1385**	2 Ap	10	·49	4 My	10	·02	5 Je	8	·55	7 Jl	8○	·08	1 Au	6	·61
4487	1443	1308	26M	·8196	4·2308	4·940		**1386**	6 Mr	30	·86	1 Ap	29	·39	2 My 4 Je	28 27●○	·92 ·45	5 Jl	26	·98	7 Au	25	·51
4488	1444	1309	26M	·8783	23·8696	3·073		**1387**	5 Ap	18	·75	7 My	18	·28	1 Je	16●	·81	3 Jl	16	·35	4 Au	14	·88
4489	1445	1310	26M	·1371	11·9779	26·785		**1388**	3 Ap	7	·12	4 My	6○	·65	6 Je	5●	·18	7 Jl	4	·71	2 Au	3	·24
4490	1446	1311	26M	·3958	1·0862	22·942		**1389**	7 Mr	27	·49	2 Ap 3 My	26●○ 25	·02 ·55	5 Je	24	.08	6 Jl	23	·61	1 Au	22	·14
4491	1447	1312	26M	·6546	19·7251	21·075		**1390**	6 Ap	15○	.39	7 My	14	·92	2 Je	13	·45	3 Jl	12	·98	5 Au	11	·51
4492	1448	1313	26M	·9134	8·8334	17·232		**1391**	3 Ap	4●	·75	5 My	4	·28	6 Je	2	·81	1 Jl	2	·34	2 Jl 31 4 Au 30		·87 ·41
4493	1449	1314	26M	·1721	27·4723	15·366		**1392**	2 Ap	22	·65	4 My	22	·18	5 Je	20	·71	7 Jl	20	·24	1 Au	18○	·77
4494	1450	1315	26M	·4309	16·5806	11·523		**1393**	7 Ap	12	·02	1 My	11	·55	3 Je	10	·08	4 Jl	9	·61	6 Au	8●○	·14
4495	1451	1316	26M	·6896	5·6889	7·680		**1394**	4 Ap	1	·38	6 My	1	·91	7 My	30	·45	1 Je 3 Jl	28 28	·98 ·51	5 Au	27	·04
4496	1452	1317	26M	·9484	24·3278	5·813		**1395**	3 Ap	20	·28	4 My	19	·81	6 Je	18○	·34	7 Jl	17	·87	2 Au	16	·40
4497	1453	1318	26M	·2071	13·4361	1·970		**1396**	7 Ap	8	·65	2 My	8	·18	3 Je	6○	·71	5 Jl	6	·24	6 Au	4	·77
4498	1454	1319	26M	·4659	2·5444	25·683		**1397**	5 Mr	29	·02	6 Ap 1 My	27 27●○	·55 ·08	2 Je	25	·61	4 Jl	25	·14	5 Au	23	·67
4499	1455	1320	26M	·7247	21·1833	23·816		**1398**	3 Ap	18	·91	5 My	16	·44	6 Je	14	·97	1 Jl	14	·51	3 Au	13	·04
4500	1456	1321	26M	·9834	10·2916	19·973		**1399**	1 Ap	6○	·28	2 My	5	·81	4 Je	4	·34	5 Jl	3	·87	7 Au	2	·40
4501	1457	1322	26M	·2422	28·9305	18·106		**1400**	7 Ap	24	·18	1 My	23	.71	3 Je	22	·24	4 Jl	21	·77	6 Au	20	·30
4502	1458	1323	26M	·5009	13·0388	14·264		**1401**	4 Ap	13	·55	6 My	13	.08	7 Je	11	·61	2 Jl	11	·14	3 Au	9	·67
4503	1459	1324	26M	·7597	7·1471	10·421		**1402**	1 Ap	2	·91	3 My	2	.44	4 My	31	·97	6 Je	30	·50	1 Jl 30○ 2 Au 28		·03 ·57
4504	1460	1325	27M	·0184	25·7860	8·554		**1403**	7 Ap	21	·81	2 My	21	·34	3 Je	19	·87	5 Jl	19○	·40	6 Au	17	·93
4505	1461	1326	26M	·2772	14·8943	4·711		**1404**	5 Ap	10	·18	6 My	9	·71	1 Je	8	·24	2 Jl	7○	·77	4 Au	6	·30
4506	1462	1327	26M	·5360	4·0026	0·869		**1405**	2 Mr	30	·54	Ap	29	·07	5 My 7 Je	28 27	·61 ·14	1 Jl	26	·67	3 Au	25	·2[illegible]
4507	1463	1328	26M	·7947	22·6414	26·556		**1406**	1 Ap	18	·44	2 My	17○	·97	4 Je	16●	·50	6 Jl	16	·03	7 Au	14	·56
4508	1464	1329	27M	·0535	11·7497	22·714		**1407**	5 Ap	7	·81	7 My	7○	·34	1 Je	5●	·87	3 Jl	5	·40	4 Au	3	·93
4509	1465	1330	26M	·3122	0·8580	18·871		**1408**	3 Mr 27 4 Ap 25●○		·18 ·71	6 My	25	·24	7 Je	23	·77	2 Jl	23	·30	3 Au	21	·83
4510	1466	1331	26M	·5710	19·4989	17·004		**1409**	2 Ap	15	·07	3 My	14	·60	5 Je	13	·13	6 Jl	12	·67	1 Au	11	·20
4511	1467	1332	26M	·8297	8·6052	13·161		**1410**	6 Ap	4	·44	7 My	3	·97	2 Je	2	·50	4 Jl	2	·03	5 Jl 31 7 Au 30○		·56 ·09
4512	1468	1333	27M	·0885	27·2441	11·295		**1411**	5 Ap	23	·84	6 My	22	·87	1 Je	21	·40	2 Jl	20	·93	4 Au	19○	·46
4513	1469	1334	26M	·3472	16·3524	7·453		**1412**	2 Ap	11	·71	4 My	11	·24	5 Je	9	·77	7 Jl	9	·30	1 Au	7	·83
4514	1470	1335	26M	·6060	5·4607	3·609		**1413**	7 Ap	1	·07	1 Ap	30	·60	3 My 4 Je	30 28○	·13 ·66	6 Jl	28	·19	7 Au	26	·72
4515	1471	1336	26M	·8648	24·0936	1·742		**1414**	5 Ap	19	·97	7 My	19	·50	2 Je	18○	·03	3 Jl	17	·56	5 Au	16	·09
4516	1472	1337	27M	·1235	13·2079	25·454		**1415**	3 Ap	9	·34	4 My	8	·87	6 Je	7●○	·40	7 Jl	6	·93	2 Au	5	·46
4517	1473	1338	26M	3823	2·3162	21·612		**1416**	7 Mr	28	·70	2 Ap 3 My	27 26●	·23 ·77	5 Je	25	·30	6 Jl	24	·83	1 Au	23	·36
4518	1474	1339	26M	·6410	20·9551	19·745		**1417**	6 Ap	16○	·60	1 My	16	·13	2 Je	14	·66	4 Jl	14	·19	5 Au	12	·72
4519	1475	1340	26M	·8998	10·0634	15·802		**1418**	3 Ap	5○	·37	5 My	5	·50	7 Je	4	·03	1 Jl	3	·56	3 Au	2	·09
4520	1476	1341	27M	·1585	28·7023	14·035		**1419**	2 Ap	24	·87	4 My	24	·40	5 Je	22	·93	7 Jl	22	·46	1 Au	20	·99
4521	1477	1342	26M	·4173	17·8106	10·193		**1420**	7 Ap	13	·23	1 My	12	·76	3 Je	11	·29	4 Jl	10	·83	6 Au	9○	·36
4522	1478	1343	26M	·6761	6·9189	6·350		**1421**	4 Ap	2	·60	6 My	2	·13	7 My	31	·66	2 Je 3 Jl	30 29○	·19 ·72	5 Au	28●	·25
4523	1479	1344	26M	·9348	25·5578	4·483		**1422**	3 Ap	21	·50	5 My	21	·03	6 Je	19	·53	1 Jl	19○	·09	2 Au	17	·62
4524	1480	1345	27M	·1936	14·6660	0·640		**1423**	7 Ap	10	·87	2 My	10	·40	3 Je	8	·93	5 Jl	8●	·46	6 Au	6	·99
4525	1481	1346	26M	·4523	3·7743	24·352		**1424**	5 Mr	30	·23	6 Ap	28	·76	1 My 2 Je	28○ 26	·29 ·82	4 Jl	26	·35	5 Au	24	·89
4526	1482	1347	26M	·7111	22·4132	22·485		**1425**	4 Ap	18	·13	5 My	17○	·66	7 Je	16	·19	1 Jl	15	·72	3 Au	14	·25
4527	1483	1348	26M	·9698	11·5215	18·644		**1426**	1 Ap	7	·50	3 My	7○	·03	4 Je	5	·56	6 Jl	5	·09	7 Au	3	·62
4528	1484	1349	27M	·2286	0·6298	14·800		**1427**	5 Mr 27○ 7 Ap 26		·86 ·39	1 My	25	·93	3 Je	24	·46	4 Jl	23	·93	6 Au	22	·52
4529	1485	1350	26M	·4873	19·2687	12·933		**1428**	4 Ap	14	·76	6 My	14	·29	7 Je	12	·82	2 Jl	12	·35	3 Au	10	·88
4530	1488	1351	26M	·7461	8·3770	9·090		**1429**	2 Ap	4	·13	3 My	3	·66	5 Je	2	·19	6 Jl	1	·72	1 Jl 31 2 Au 29○		·25 ·78
4531	1487	1352	27M	·0049	27·0159	7·224		**1430**	1 Ap	23	·03	2 My	22	·56	4 Je	21	·09	5 Jl	20	·62	7 Au	19●○	·15
4532	1488	1353	27M	·2636	16·1242	3·381		**1431**	5 Ap	12	·39	6 My	11	·92	1 Je	10	·45	2 Jl	9○	·99	4 Au	8●	·52

N.B.—For tithis by other siddhāntas, add to the above algebraically as follows:—

Sūrya siddhānta—*cont.*

Āśvina.				Kārttika.				Mārgāśīrsha.				Pausha.			A.D.	Māgha.				A.D.	Phālguna.				Chaitra.			
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
1	S	11○	·88	3	O	11	·41	4	N	9	·94	6	D	9	·47	**80**	1	Jr	8	·00		2	F	6	·53	4	Mr	7	·06
6	Au	31	·25	7	S	29○	·78	**Mārgasira Kshaya**				3	N	27	·84		5	D	27	·37	**81**	6	Jr	25	·90	1	F	24	·43
				2	O	29	·31																					
5	S	19○	·14	6	O	18●	·67	1	N	17	·20	2	D	16	·73	**82**	4	Jr	15	·27		5	F	13	·80	7	Mr	15○	·33
2	S	8○	·51	4	O	8	·04	5	N	6	·57	7	D	6	·10	**83**	1	Jr	4	·63		3	F	3	·16	4	Mr	4	·69
1	S	27	·41	2	O	26	·94	4	N	25	·47	6	D	25	·00	**84**	7	Jr	23○	·53		2	F	22	·06	8	Mr	22	·59
5	S	15	·77	7	O	15	·31	1	N	13	·84	3	D	13	·37	**85**	4	Jr	11○	·90		6	F	10	·43	7	Mr	11	·96
3	S	5	·14	4	O	4	·67	6	N	3	·20	7	D	2	·73	**86**	2	Jr	1●○	·26		3	Jr	30	·79	5	Mr	1	·33
2	S	24	·04	3	O	23	·57	5	N	22	·10	6	D	21●	·63	**87**	1	Jr	20	·16		2	F	18	·69	4	Mr	20	·22
6	S	13	·41	7	O	12	·94	2	N	11○	·47	4	D	11●	·00	**88**	5	Jr	9	·52		7	F	8	·06	1	Mr	8	·59
3	S	1	·77	5	O	1	30	6	O	30○	·83	1	N	29	·37		2	D	28	·90	**89**	4	Jr	27	·43	5	F	25	·96
2	S	20	.67	4	O	20○	·20	5	N	18	·73	7	D	18	·26	**90**	1	Jr	16	·79		3	F	15	·32	4	Mr	16	·85
7	S	10	.04	1	O	9●	·57	3	N	8	·10	4	D	7	·63	**91**	6	Jr	6	·16		7	F	4	·69	2	Mr	6○	·22
5	S	28	.94	7	O	28	·47	2	N	27	·00	3	D	26	·53	**92**	5	Jr	25	·06		6	F	23○	59	1	Mr	24	·12
3	S	17	·30	4	O	16	·83	6	N	15	36	7	D	14	·89	**93**	2	Jr	13	·43		3	F	11○	·96	5	Mr	13	·49
7	S	6	·67	2	O	6	·20	3	N	4	·73	5	D	4	·26	**94**	6	Jr	2	·79		1	F	1●	·32	2	Mr	2	·85
6	S	25	·57	1	O	25	·10	2	N	23	·63	4	D	23	·16	**95**	5	Jr	21	·69		7	F	20	·22	1	Mr	21	·75
3	S	14	·93	5	O	14	·47	7	N	13	·00	1	D	12○	·53	**96**	3	Jr	11	·06		4	F	9	·59	6	Mr	10	·12
1	S	3	·30	2	O	2	·83	4	N	1	·36	5	N	30○	·89		7	D	30	·42	**97**	1	Jr	28	·95	3	F	27	·49
7	S	22	·20	1	O	21	·73	3	N	20	·26	4	D	19	·79	**98**	6	Jr	18	·32		7	F	16	·85	2	Mr	18	·38
4	S	11	·57	6	O	11○	·10	7	N	9●	·63	2	D	9	·16	**99**	3	Jr	7	·69		5	F	6	·22	6	Mr	7	·75
1	Au	31	·93	3	S	30○	·46					**Pausha Kshaya**				**14**	1	D	28	·06	**00**	2	Jr	26	·59	4	Fr	25	·12
				4	O	29	·99	6	N	28	·53															5	Mr	25●○	·85
7	S	18○	·83	2	O	18	·36	3	N	16	·89	5	D	16	·42	**01**	6	Jr	14	·95		1	F	13	·48	3	Mr	15●	·01
5	S	8●	·20	6	O	7	·73	1	N	6	·26	2	D	5	·79	**02**	4	Jr	4	·32		5	F	2○	·85	7	Mr	4●	·38
4	S	27	·10	5	O	26	·63	7	N	25	·16	1	D	24	·69	**03**	3	Jr	23○	·22		4	F	21	·75	6	Mr	23	·28
1	S	16	·46	2	O	15	·99	4	N	14	·52	6	D	14	·05	**04**	7	Jr	12○	.59		2	F	11	·12	3	Mr	11	·65
5	S	4	·88	7	O	4	·36	1	N	2	·89	3	D	2	·42		4	D	31●	.95	**05**	6	Jr	30	·48	1	Mr	1	·01
4	S	28	·73	6	O	23	·26	7	N	21○	·79	2	D	21	·32	**06**	3	Jr	19	.85		5	F	18	·38	6	Mr	19	·91
2	S	13	·09	3	O	12	·63	5	N	11○	·16	6	D	10	·69	**07**	1	Jr	9	·22		2	F	7	·75	4	Mr	9	·28
6	S	2	·46	7	O	1	·09	2	O	31○	·52	4	N	30	·05		5	D	29	·58	**08**	7	Jr	28	·11	1	F	26	·64
5	S	20	·36	6	O	19●	·89	1	N	18	·42	2	D	17	·95	**09**	4	Jr	16	·48		6	F	15	·01	7	Mr	16○	·54
2	S	9	·73	4	O	8●	·26	5	N	7	·79	7	D	7	·32	**10**	1	Jr	5	·85		3	F	4	·38	4	Mr	5○	·91
1	S	28	·62	3	O	28	·15	4	N	26	·69	6	D	26	·22	**11**	7	Jr	24	·75		2	F	23○	·28	3	Mr	24	·81
5	S	17	·99	7	O	17	·52	2	N	16	·05	3	D	15	·58	**12**	5	Jr	14	·11		6	F	12●	·64	1	Mr	13	·17
3	S	6	·36	4	O	5	·89	6	N	4	·42	7	D	3	·95	**13**	2	Jr	2	·48		4	F	1●	·01	5	Mr	2	·54
2	S	25	·26	3	O	24	·79	5	N	23	·32	6	D	22○	·85	**14**	1	Jr	21	·38		2	F	19	·91	4	Mr	21	·44
6	S	14	·62	1	O	14	·15	2	N	12	·68	4	D	12○	·21	**15**	5	Jr	10	·75		7	F	9	·28	1	Mr	10	·81
3	S	3	·99	5	O	3	·52	7	N	2	·05	1	D	1	·58		3	D	31	·11	**16**	4	Jr	29	·64	6	Fr	28	·17
2	S	21	·89	4	O	21○	·42	5	N	19	.95	7	D	19	·48	**17**	2	Jr	18	·01		3	F	16	·54	5	Mr	18	·07
7	S	11	·25	1	O	10○	·79	3	N	9	·32	4	D	8	·85	**18**	6	Jr	7	·38		7	F	5	·91	2	Mr	7	·44
4	Au	31	·62	6	S	30○	·15																						
				7	O	29	68	2	N	28	·21	3	D	27	·74	**19**	5	Jr	26	·27		6	F	24	·81	1	Mr	26●○	·34
3	S	19	·52	5	O	19	·05	6	N	17	·58	1	D	17	·11	**20**	2	Jr	15	·64		4	F	14○	·17	5	Mr	14	·70
7	S	7●	·89	2	O	7	·42	3	N	5	·95	5	D	5	·48	**21**	7	Jr	4	·01		1	F	2○	·54	3	Mr	4	·07
6	S	26	·78	1	O	26	·31	2	N	24	·85	4	D	24	·38	**22**	5	Jr	22●○	·91		7	F	21	·44	1	Mr	22	·97
4	S	16	·15	5	O	15	·68	7	N	14	·21	1	D	13	·74	**23**	3	Jr	12	·27		4	F	10	·80	6	M	12	·33
1	S	5	·52	3	O	5	·05	4	N	3	58	6	D	3○	·11	**24**	7	Jr	1●	·64		2	Jr	31	·17	3	F	29	·70
7	S	23	·42	1	O	22	·95	3	N	21○	·48	5	D	21	·01	**25**	6	Jr	19	·54		1	F	18	·07	2	M	19	·60
4	S	12	·78	6	O	12	·31	7	N	10●○	·84	2	D	10	·37		3	Jr	8	·91		5	F	7	·44	6	Mr	8	·97
2	S	2	·15	3	O	1	·68	5	O	31	·21	6	N	29	·74	**26**	1	D	29	·27	**27**	2	Jr	27	·80	4	F	26	·33
1	S	21	·05	2	O	20	·58	4	N	19	·11	5	D	18	·64	**28**	7	Jr	17	·17		1	F	15	·70	3	Mr	16○	·23
5	S	9○	·42	6	O	8●	·95	1	N	7	·48	3	D	7	·01	**29**	4	Jr	5	·54		6	F	4	·07	7	Mr	5●○	·60
4	S	28	·31	5	O	27	·84	7	N	26	·37	1	D	25	·90	**30**	3	Jr	24	·43		4	F	22	·96	6	Mr	24	·50
1	S	17	·68	3	O	17	·21	4	N	15	·74	6	D	15	·27	**31**	7	Jr	13	·80		2	F	12	·33	3	Mr	13	·86
6	S	7	·05	7	O	6	·58	2	N	5	·11	3	D	4	·64	**32**	5	Jr	3○	·17		6	F	1●	·70	1	Mr	2	·23

(1) for Ārya siddhānta +·03; (2) for Brahma siddhānta —·08; and (3) for Siddhānta Śirōmaṇi —·02.

TABLE II.—

Kaliyuga.	Vikrama era.	Śaka era.	Commencement of solar year. Month and day A.D.	Commencement of solar year. Fraction of day.	First new-moon in solar year.	Anomaly of first new moon.	Christian era.	Vaiśākha. Week-day.	Vaiśākha. Month.	Vaiśākha. Day.	Vaiśākha. Fraction.	Jyeshṭha. Week-day.	Jyeshṭha. Month.	Jyeshṭha. Day.	Jyeshṭha. Fraction.	Āshaḍha. Week-day.	Āshaḍha. Month.	Āshaḍha. Day.	Āshaḍha. Fraction.	Śrāvana. Week-day.	Śrāvana. Month.	Śrāvana. Day.	Śrāvana. Fraction.	Bhādrapada. Week-day.	Bhādrapada. Month.	Bhādrapada. Day.	Bhādrapada. Fraction.
							A.D.																				
4533	1489	1354	26M	·5224	5·2325	27.093	**1432**	2	Mr	31	·76	4	Ap	30	·29	5	My	29	·82	1	Jl	27	·88	3	Au	26	·41
																7	Je	28○	·35								
4534	1490	1355	26M	·7811	23·8714	25·226	**1433**	1	Ap	19	·66	3	My	19	·19	4	Je	17○	·72	6	Jl	17	·25	7	Au	15	·78
4535	1491	1356	27M	·0399	12·9797	21·383	**1434**	6	Ap	9	·03	7	My	8	·56	2	Je	7●	·09	3	Jl	6	·62	5	Au	5	·15
4536	1492	1357	27M	·2986	2·0880	17·541	**1435**	4	Ap	27○	·39	7	Je	25	·92				·98	2	Jl	25	·51	4	Au	24	·05
								6	My	27					·45												
4537	1493	1358	26M	·5574	20·7269	15·674	**1436**	2	Ap	16○	·29	3	My	15	·82	5	Je	14	·35	6	Jl	13	·88	1	Au	12	·41
4538	1494	1359	26M	·8162	9·8352	11·831	**1437**	6	Ap	5○	·66	1	My	5	·19	2	Je	3	·72	4	Jl	3	·25	5	Au	1	·78
4539	1495	1360	27M	·0749	28·4741	9·964	**1438**	5	Ap	24	·55	7	My	24	·09	1	Je	22	·62	3	Jl	22	·15	4	Au	20	·68
4540	1496	1361	27M	·3337	17·5824	6·122	**1439**	2	Ap	13	·92	4	My	18	·45	5	Je	11	·98	7	Jl	11	·51	2	Au	10○	·04
4541	1497	1362	26M	·5924	6·6907	2·279	**1440**	7	Ap	2	·29	1	My	1	·81	3	My	31	·35	4	Je	29	·88	7	Au	27	·94
																				6	Jl	29○	·41				
4542	1498	1363	26M	·8512	25·3295	0·412	**1441**	6	Ap	21	·19	7	My	20	·72	2	Je	19	·25	3	Jl	18●	·78	5	Au	17	·31
4543	1499	1364	27M	·1099	14·4378	24·124	**1442**	3	Ap	10	·55	5	My	10	·08	6	Je	8○	·61	1	Jl	8	·15	2	Au	6	·68
4544	1500	1365	27M	·3687	3·5461	20·281	**1443**	7	Mr	30	·92	2	Ap	29	·45	3	My	28○	·98	7	Jl	27	·04	1	Au	25	·57
																5	Je	27	·51								
4545	1501	1366	26M	·6275	22·1850	18·414	**1444**	6	Ap	17	·82	1	My	17○	·35	2	Je	15	·88	4	Jl	15	·41	5	Au	13	·94
4546	1502	1367	26M	·8862	11·2933	14·572	**1445**	4	Ap	7	·18	5	My	6●	·71	7	Je	5	·25	1	Jl	4	·78	3	Au	3	·31
4547	1503	1368	27M	·1450	0·4016	10·729	**1446**	1	Mr	27○	·55	4	My	25	·61	6	Je	24	·14	7	Jl	23	·67	2	Au	22	·20
								3	Ap	26●	·08																
4548	1504	1369	27M	·4037	19·0405	8·862	**1447**	7	Ap	15	·45	1	My	14	·98	3	Je	13	·51	5	Jl	13	·04	6	Au	11	·57
4549	1505	1370	26M	·6625	8·1488	5·019	**1448**	4	Ap	3	·82	6	My	3	·35	7	Je	1	·88	2	Jl	1	·41	3	Jl	30	·94
																								5	Au	29●○	·47
4550	1506	1371	26M	·9212	26·7877	3·153	**1449**	3	Ap	22	·71	5	My	22	·24	6	Je	20	·77	1	Jl	20○	·31	2	Au	18	·84
4551	1507	1372	27M	·1800	15·8960	26·864	**1450**	1	Ap	12	·08	2	My	11	·61	4	Je	10	·14	5	Jl	9○	·67	7	Au	8	·20
4552	1508	1373	27M	·4387	5·0043	23·022	**1451**	5	Ap	1	·45	6	Ap	30	·98	1	My	30	·51	4	Jl	28	·57	6	Au	27	·10
																3	Je	29○	·04								
4553	1509	1374	26M	·6975	23·6432	21·155	**1452**	4	Ap	19	·35	5	My	18	·88	7	Je	17	·41	1	Jl	16	·94	3	Au	15	·47
4554	1510	1375	26M	·9563	12·7515	17·312	**1453**	1	Ap	8	·71	3	My	8○	·24	4	Je	6●	·77	6	Jl	6	·30	7	Au	4	·83
4555	1511	1376	27M	·2150	1·8598	13·469	**1454**	6	Mr	29	·08	7	Ap	27●○	·61	3	Je	25	·67	5	Jl	25	·20	6	Au	23	·73
												2	My	27	·14												
4556	1512	1377	27M	·4738	20·4987	11·603	**1455**	4	Ap	16●○	·98	6	My	16	·51	1	Je	15	·04	2	Jl	14	·57	4	Au	13	·10
4557	1513	1378	26M	·7325	9·6070	7·760	**1456**	2	Ap	5●	·34	3	My	4	·87	5	Je	3	·41	6	Jl	2	·94	1	Au	1	·47
4558	1514	1379	26M	·9913	28·2459	5·893	**1457**	1	Ap	24	·24	2	My	23	·77	4	Je	22	·30	5	Jl	21	·83	7	Au	20○	·36
4559	1515	1380	27M	·2500	17·3542	2·050	**1458**	5	Ap	13	·61	7	My	13	·14	1	Je	11	·67	3	Jl	11	·20	4	Au	9○	·73
4560	1516	1381	27M	·5088	6·4625	25·762	**1459**	2	Ap	2	·98	4	My	2	·51	6	Je	1	·04	7	Je	30	·57	3	Au	28	·63
																				2	Jl	30	·10				
4561	1517	1382	26M	·7676	25·1013	23·896	**1460**	1	Ap	20	·87	3	My	20	·40	4	Je	18○	·93	6	Jl	18●	·47	1	Au	17	·00
4562	1518	1383	27M	·0253	14·2096	20·053	**1461**	6	Ap	10	·24	7	My	9	·77	2	Je	8○	·30	3	Jl	7●	·83	5	Au	6	·36
4563	1519	1384	27M	·2851	3·3179	16·210	**1462**	3	Mr	30	·61	5	Ap	29	·14	6	My	28●○	·67	2	Jl	26	·73	4	Au	25	·26
																1	Je	27	·20								
4564	1520	1385	27M	·5438	21·9568	14·343	**1463**	2	Ap	18	·51	4	My	18●	·04	5	Je	16	·57	7	Jl	16	·10	1	Au	14	·63
4565	1521	1386	26M	·8026	11·0651	10·501	**1464**	6	Ap	6○	·87	1	My	6●	·40	2	Je	4	·93	4	Jl	4	·46	5	Au	2	·99
4566	1522	1387	27M	·0613	0·1734	6·658	**1465**	5	Ap	25	·77	7	My	25	·30	1	Je	23	·83	3	Jl	23	·36	4	Au	21	·89
4567	1523	1388	27M	·3201	18·8123	4·791	**1466**	3	Ap	15	·15	4	My	14	·67	6	Je	13	·20	7	Jl	12	·73	2	Au	11	·26
4568	1524	1389	27M	·5789	7·9206	0·948	**1467**	7	Ap	4	·50	2	My	4	·03	3	Je	2	·56	5	Jl	2	·09	6	Jl	31○	·63
																								1	Au	30	·16
4569	1525	1390	26M	·8376	26·5595	26·636	**1468**	6	Ap	22	·40	7	My	21	·93	2	Je	20	·46	3	Jl	19○	·99	5	Au	18	·52
4570	1526	1391	27M	·0964	15·6678	22·793	**1469**	3	Ap	11	·77	5	My	11	·30	6	Je	9	·83	1	Jl	9●○	·36	2	Au	7	·89
4571	1527	1392	27M	·3551	4·7761	18·951	**1470**	1	Ap	1	·14	2	Ap	30	·67	4	My	30	·20	7	Jl	28	·26	1	Au	26	·79
																5	Je	28●	·73								
4572	1528	1393	27M	·6139	23·4150	17·084	**1471**	7	Ap	20	·03	1	My	19○	·56	3	Je	18	·09	4	Jl	17	·62	6	Au	16	·16
4573	1529	1394	26M	·8726	12·5233	13·241	**1472**	4	Ap	8	·40	5	My	7○	·93	7	Je	6	·46	1	Jl	5	·99	3	Au	4	·52
4574	1530	1395	27M	·1314	1·6316	9·398	**1473**	1	Mr	28	·77	3	Ap	27●○	·30	6	Je	25	·36	7	Jl	24	·89	2	Au	23	·42
												4	My	26	·83												
4575	1531	1396	27M	·3901	20·2705	7·532	**1474**	7	Ap	16●	·67	2	My	16	·20	3	Je	14	·73	5	Jl	14	·26	6	Au	12	·79
4576	1532	1397	27M	·6489	9·3788	3·689	**1475**	5	Ap	6	·03	6	My	5	·56	1	Je	4	·09	2	Jl	3	·62	4	Au	2	·15
4577	1533	1398	26M	·9077	28·0176	1·822	**1476**	3	Ap	23	·93	5	My	23	·46	6	Je	21	·99	1	Jl	21	·52	3	Au	20○	·05
4578	1534	1399	27M	·1654	17·1259	25·534	**1477**	1	Ap	13	·30	2	My	12	·83	4	Je	11	·36	5	Jl	10	·89	7	Au	9	·42
4579	1535	1400	27M	·4252	6·2342	21·691	**1478**	5	Ap	2	·66	7	My	2	·19	1	My	31	·72	3	Je	30○	·25	6	Au	28	·31
																				4	Jl	29●	·78				
4580	1536	1401	27M	·6839	24·8731	19·825	**1479**	4	Ap	21	·56	6	My	21	·09	7	Je	19○	·62	2	Jl	19	·15	3	Au	17	·68
4581	1537	1402	26M	·9427	13·9814	15·982	**1480**	1	Ap	9	·93	3	My	9	·46	4	Je	7●○	·99	6	Jl	7	·52	1	Au	6	·05
4582	1538	1403	27M	·2014	3·0897	12·139	**1481**	6	Mr	30	·30	7	Ap	28	·83	2	My	28	·36	5	Jl	26	·42	6	Au	24	·95
																3	Je	26	·89								
4583	1539	1404	27M	·4602	21·7286	10·272	**1482**	5	Ap	18○	·19	6	My	17	·72	1	Je	16	·25	2	Jl	15	·78	4	Au	14	·31
4584	1540	1405	27M	·7190	10·8369	6·430	**1483**	2	Ap	7○	·56	4	My	7	·09	5	Je	5	·62	7	Jl	5	·15	1	Au	3	·68
4585	1541	1406	26M	·9777	29·4758	4·563	**1484**	1	Ap	25	·46	2	My	24	·99	4	Je	23	·52	6	Jl	23	·05	7	Au	21	·58

N.B.—For tithis by other siddhāntas add to the above algebraically as follows :—

Sūrya siddhānta—*cont.*

Āśvina.				Kārttika.				Mārgaśirsha.				Pausha.				A.D.	Māgha.			A.D.	Phālguna.				Chaitra.			
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
4	S	24	·94	6	O	24	·47	1	N	23	·01	2	D	22○	·54	33	4	Jr	21	07		5	F	19	·60	7	Mr	21	·13
2	S	14	·31	3	O	13	·84	5	N	12	·37	6	D	11	·90	34	1	Jr	10	·43		2	F	8	·96	4	Mr	10	·49
6	S	3	·68	1	O	3	·21	2	N	1	·74	4	D	1	·27		5	D	30	·80	35	7	Jr	29	·33	1	F	27	·86
5	S	22	·58	7	O	22○	·11	1	N	20●	·64	3	D	20	·17	36	4	Jr	18	·70		6	F	17	·23	7	Mr	17	·76
2	S	10	·94	4	O	10○	·47	6	N	9	·00	7	D	8	·53	37	2	Jr	7	·07		3	F	5	·60	5	Mr	7	·13
7	Au	31	·81	1 3	S O	29● 29	·84 ·37	4	N	27	·90	6	D	27	·43	38	7	Jr	25	96		2	F	24○	·49	4	Mr	26	·02
6	S	19●	·21	7	O	18	·74	2	N	17	·27	3	D	16	·80	39	5	Jr	15	·33		6	F	13○	·86	1	Mr	15	·39
3	S	8	·57	5	O	8	·11	6	N	6	·64	1	D	6	·17	40	2	Jr	4	·70		4	F	3○	·23	5	Mr	3	·76
2	S	26	·47	4	O	26	·00	5	N	24	·53	7	D	24	·06	41	1	Jr	22●	·59		3	F	21	·13	4	Mr	22	·66
6	S	15	·84	1	O	15	·37	2	N	13	·90	4	D	13○	·43	42	5	Jr	11●	·96		7	F	10	·49	2	Mr	12	·02
4	S	5	·21	5	O	4	·74	7	N	3	·27	1	D	2○	·80	43	3	Jr	1	·33		4	Jr	30	·86	6	Mr	1	·39
3	S	24	·10	4	O	23	·63	6	N	22○	·17	7	D	21	·70	44	2	Jr	20	·23		3	F	18	·76	5	Mr	19	·29
7	S	12	·47	2	O	12	·00	3	N	10●	·53	5	D	10	·06	45	6	Jr	8	·59		1	F	7	·12	2	Mr	8	·65
4	S	1	·84	6	O	1	·37	7	O	30	·90	2	N	29	·43		3	D	28	·96	46	5	Jr	27	·49	7	F	26	·02
3	S	20○	·73	5	O	20	·27	6	N	18	·80	1	D	18	·33	47	2	Jr	16	·86		4	F	15	·39	5	Mr	16○	·92
1	S	10●○	10	2	O	9	·63	4	N	8	·16	5	D	7	·69	48	7	Jr	6	·22		1	F	4	·75	3	Mr	5●	·29
7	S	28	·00	1	O	27	·53	3	N	26	·06	4	D	25	·59	49	6	Jr	24	·12		7	F	22	·65	2	Mr	24	·18
4	S	17	·37	5	O	16	·90	7	N	15	·43	1	D	14	·96	50	3	Jr	13○	·49		5	F	12	·02	6	Mr	13	·55
1	S	6	·73	3	O	6	·26	4	N	4	·79	6	D	4	·33	51	7	Jr	2○	·86		2	F	1	·39	3	Mr	2	·92
7	S	25	·63	2	O	25	·16	3	N	23	·69	5	D	23●	·22	52	6	Jr	21	·75		1	F	20	·28	2	Mr	20	·81
5	S	14	·00	6	O	13	·53	1	N	12	·06	2	D	11●	·59	53	4	Jr	10	·12		5	F	8	·65	7	Mr	10	·18
2	S	3	·37	3	O	2	·90	5	N	1○	·43	6	N	30	·96		1	D	30	·49	54	3	Jr	29	·02	4	F	27	·55
1	S	22	·26	2	O	21○	·79	4	N	20	·32	5	D	19	·85	55	7	Jr	18	·39		1	F	16	·92	3	Mr	18	·45
5	S	11	·63	7	O	11	·16	1	N	9	·69	3	D	9	·22	56	4	Jr	7	·75		6	F	6	·28	7	Mr	6○	·81
3	Au	31	·00	4 6	S O	29 29	·53 ·06	7	N	27	·59	2	D	27	·12	57	3	Jr	25	·65		5	F	24○	·18	6	Mr	25	·71
1	S	18	·89	3	O	18	·43	4	N	16	·96	6	D	16	·49	58	1	Jr	15	.02		2	F	13○	·55	4	Mr	15	·08
6	S	8	·26	7	O	7	·79	2	N	6	·32	3	D	5	·85	59	5	Jr	4	·38		6	F	2●	·91	1	Mr	4	·45
5	S	27	·16	6	O	26	·69	1	N	25	·22	2	D	24○	·75	60	4	Jr	23	·28		5	F	21	·81	7	Mr	22	·34
2	S	15	·53	4	O	15	·06	5	N	13	·59	7	D	13○	·12	61	1	Jr	11	·65		3	F	10	·18	4	Mr	11	·71
6	S	4	·89	1	O	4	·42	2	N	2	·95	4	D	2●○	·49	62	6	Jr	1	·02		7	Jr	30	·55	2	Mr	1	·08
5	S	23	·79	7	O	23	·32	1	N	21●	·85	3	D	21	·38	63	4	Jr	19	·91		6	F	18	·44	7	Mr	19	·97
3	S	13	·16	4	O	12	·69	6	N	11●	·22	7	D	10	·75	64	2	Jr	9	·28		3	F	7	·81	5	Mr	8	·34
7	S	1	·53	2	O	1○	·06	3	O	30	·59	5	N	29	·12		6	D	28	·65	65	1	Jr	27	·18	2 4	F Mr	25 27○	·71 ·24
6	S	20○	·42	7	O	19	·95	2	N	18	·48	4	D	18	·01	66	5	Jr	16	·55		7	F	15	·08	1	Mr	16	·61
3	S	9○	·79	5	O	9	·32	6	N	7	·85	1	D	7	·38	67	2	Jr	5	·91		4	F	4	·44	5	Mr	5●	97
2	S	28	·69	4	O	28	·22	5	N	26	·75	7	D	26	·28	68	1	Jr	24○	·81		3	F	23	·34	4	Mr	23	·87
7	S	17	·05	1	O	16	·58	3	N	15	·11	4	D	14	·64	69	6	Jr	13○	·17		7	F	11	·70	2	Mr	13	·23
4	S	6	·42	5	O	5	·95	7	N	4	·48	2	D	4	·01	70	3	Jr	2○	·54		5	F	1	·07	6	Mr	2	·60
3	S	25	·32	4	O	24	·85	6	N	23	·38	7	D	22	·91	71	2	Jr	21	·44		3	F	19	·97	5	Mr	21	·50
7	S	14	·69	2	O	14	·22	3	N	12○	·75	5	D	12	·28	72	6	Jr	10	·81		1	F	9	·34	2	Mr	9	·87
5	S	3	·05	6	O	2	·58	1	N	1○	·11	2	N	30	64		4	D	30	·17	73	5	Jr	28	·70	7	F	27	·23
3	S	21	·95	5	O	21○	·48	7	N	20	·01	1	D	19	·54	74	3	Jr	18	·07		4	F	16	·60	6	Mr	18	·13
1	S	11	·32	2	O	10●	·85	4	N	9	·38	5	D	8	·91	75	7	Jr	7	·44		1	F	5	·97	3	Mr	7○	·50
5 7	Au S	31○ 30●	·68 ·21	1	O	29	·74	3	N	28	·27	4	D	27	·81		Magha Kshaya				76	6 7	Jr F	26 24●○	·33 ·86	2	Mr	25	·39
4	S	18	·58	6	O	18	·11	7	N	16	·64	2	D	16	·17	77	3	Jr	14	·70		5	F	13	·23	6	Mr	14	·76
1	S	7	·95	3	O	7	·48	5	N	6	·01	6	D	5	·54	78	1	Jr	4	·07		2	F	2	·60	4	Mr	4	·13
7	S	26	·84	2	O	26	·37	3	N	24	·90	5	D	24○	·43	79	6	Jr	22	96		1	F	21	·49	3	Mr	23	·02
5	S	16	·21	6	O	15	·74	1	N	14	·27	2	D	13●○	·80	80	4	Jr	12	·33		5	F	10	·86	7	Mr	11	·89
2	S	4	·58	4	O	4	·11	5	N	2	·64	7	D	2	·17		1	D	31	·70	81	3	Jr	30	·23	4	F	28	·76
1	S	23	·48	3	O	23	·01	4	N	21●	·54	6	D	21	·07	82	7	Jr	19	·60		2	F	18	·18	3	Mr	19	·66
5	S	12	·85	7	O	12○	·38	1	N	10●'	·91	3	D	10	·44	83	4	Jr	8	·97		6	F	7	50	1	Mr	9	·03
3	S	2	·21	4	O	1○	·74	6	O	31	·27	7	N	29	·80		2	D	29	·83	84	3	Jr	27	·86	5 6	F Mr	26 26	·39 ·92
2	S	20●○	11	3	O	19	·64	5	N	18	·17	6	D	17	·70	85	1	Jr	16	·23		2	F	14	·76	4	Mr	16	·29

(1) for Ārya siddhānta + ·04; (2) for Brahma siddhānta —·09; and (3) for Siddhānta Śirōmaṇi —·02.

Kaliyuga.	Vikrama era.	Śaka era.	Commencement of solar year. Month and day A.D.	Fraction of day.	First new moon in solar year.	Anomaly of first new moon.	Christian era.	TABLE II.— Vaiśākha. Week-day.	Month.	Day.	Fraction.	Jyeshṭha. Week-day.	Month.	Day.	Fraction.	Āshāḍha. Week-day.	Month.	Day.	Fraction.	Śrāvaṇa. Week-day.	Month.	Day.	Fraction.	Bhādrapada. Week-day.	Month.	Day.	Fraction.
							A.D.																				
4586	1542	1407	27M	·2365	18·5841	0·720	**1485**	5	Ap	14	·83	7	My	14	·36	1	Je	12	·89	3	Jl	12	·42	4	Au	10○	·95
4587	1543	1408	27M	·4952	7·6924	24·432	**1486**	3	Ap	4	·19	4	My	3	·72	6	Je	2	·25	7 / 2	Jl / Jl	1 / 31○	·78 / ·31	3	Au	29	·84
4588	1544	1409	27M	·7540	26·3313	22·565	**1487**	2	Ap	23	·09	3	My	22	·62	5	Je	21	·15	6	Jl	20●○	·68	1	Au	19	·21
4589	1545	1410	27M	·0127	15·4396	18·722	**1488**	6	Ap	11	·46	7	My	10	·99	2	Je	9	·52	4	Jl	9●	·05	5	Au	7	·58
4590	1546	1411	27M	·2715	4·5479	14·880	**1489**	3	Mr	31	·82	5	Ap	30	·35	6 / 1	My / Je	29○ / 28	·88 / ·41	2	Jl	27	·95	4	Au	26	·47
4591	1547	1412	27M	·5303	23·1868	13·013	**1490**	2	Ap	19	·72	4	My	19○	·25	5	Je	17	·78	7	Jl	17	·31	1	Au	15	·84
4592	1548	1413	27M	·7890	12·2951	9·173	**1491**	7	Ap	9	·09	1	My	8●○	·62	3	Je	7	·15	4	Jl	6	·68	6	Au	5	·21
4593	1549	1414	27M	·0478	1·4034	5·327	**1492**	4 / 5	Mr / Ap	28 / 26	·46 / ·99	7	My	26	·52	2	Je	25	·05	3	Jl	24	·58	5	Au	23	·11
4594	1550	1415	27M	·3065	20·0423	3·461	**1493**	3	Ap	16●	·35	4	My	15	·88	6	Je	14	·41	7	Jl	13	·94	2	Au	12	·47
4595	1551	1416	27M	·5653	9·1506	27·173	**1494**	7	Ap	5	·72	2	My	5	·25	3	Je	3	·78	5	Jl	3	·31	6 / 1	Au / Au	1 / 31○	·84 / ·37
4596	1552	1417	27M	·8240	27·7894	25·306	**1495**	6	Ap	24	·62	1	My	24	·15	2	Je	22	·68	4	Jl	22	·21	5	Au	20●	·74
4597	1553	1418	27M	0828	16·8977	21·463	**1496**	3	Ap	12	·98	5	My	12	·52	7	Je	1[illegible]	·05	1	Jl	10	·58	3	Au	9	·11
4598	1554	1419	27M	·3415	6·0060	17·620	**1497**	1	Ap	2	·35	2	My	1	·88	4	My	31	·41	5 / 7	Je / Jl	29○ / 29●	·94 / ·49	2	Au	28	·00
4599	1555	1420	27M	·6003	24·6449	15·754	**1498**	7	Ap	21	·25	1	My	20	·78	3	Je	19○	·31	4	Jl	18	·84	6	Au	17	·37
4600	1556	1421	27M	·8591	13·7532	11·911	**1499**	4	Ap	10	·62	6	My	10	·15	7	Je	8●	·68	2	Jl	8	·21	3	Au	6	·74
4601	1557	1422	27M	·1178	2·8615	8·068	**1500**	1	Mr	29	·98	3 / 5	Ap / My	28○ / 28●	·51 / ·04	6	Je	26	·57	1	Jl	26	·10	2	Au	24	·63
4602	1558	1423	27M	·3766	21·5004	6·201	**1501**	7	Ap	17○	·88	2	My	17	·41	3	Je	15	·94	5	Jl	15	·47	7	Au	14	·00
4603	1559	1424	27M	·6353	10·6087	2·359	**1502**	5	Ap	7●	·24	6	My	6	·77	1	Je	5	·30	2	Jl	4	·84	4	Au	3	·37
4604	1560	1425	27M	·8941	29·2476	0·492	**1503**	4	Ap	26	·14	5	My	25	·67	7	Je	24	·20	1	Jl	23	·73	3	Au	22	·26
4605	1561	1426	27M	·1528	18·3559	24·204	**1504**	1	Ap	14	·51	3	My	14	·04	4	Je	12	·57	6	Jl	12	·10	7	Au	10○	·63
4606	1562	1427	27M	·4116	7·4642	20·361	**1505**	5	Ap	3	·88	7	My	3	·41	1	Je	1	·94	8 / 5	Jl / Jl	1 / 31○	·47 / ·00	6	Au	29	·53
4607	1563	1428	27M	·6704	26·1031	18·494	**1506**	4	Ap	22	·77	6	My	22	·30	7	Je	20	·83	2	Jl	20●	·36	3	Au	18	·90
4608	1564	1429	27M	·9291	15·2114	14·651	**1507**	2	Ap	12	·14	3	My	11	·67	5	Je	10○	·20	6	Jl	9●	·73	1	Au	8	·26
4609	1565	1430	27M	·1879	4·3197	10·809	**1508**	6	Mr	31	·51	1	Ap	30	·04	2 / 4	My / Je	29○ / 28	·57 / ·10	5	Jl	27	·63	7	Au	26	·16
4610	1566	1431	27M	·4466	22·9586	8·942	**1509**	5	Ap	19	·40	6	My	18○	·94	1	Je	17	·47	3	Jl	17	·00	4	Au	15	·53
4611	1567	1432	27M	·7054	12·0669	5·099	**1510**	2	Ap	8	·77	4	My	8●	·30	5	Je	6	·83	7	Jl	6	·36	1	Au	4	·89
4612	1568	1433	27M	·9641	1·1752	1·256	**1511**	7 / 1	Mr / Ap	29○ / 27	·14 / ·67	3	My	27	·20	4	Je	25	·73	6	Jl	25	·26	7	Au	23	·79
4613	1569	1434	27M	·2229	19·8141	26·944	**1512**	6	Ap	16	·04	7	My	15	·57	2	Je	14	·10	3	Jl	13	·63	5	Au	12	·16
4614	1570	1435	27M	·4816	8·9224	23·101	**1513**	3	Ap	5	·40	4	My	4	·93	6	Je	3	·46	1	Jl	3	·00	2 / 4	Au / Au	1 / 31○	·58 / ·06
4615	1571	1436	27M	·7404	27·5812	21·235	**1514**	2	Ap	24	·30	3	My	23	·83	5	Je	22	·36	6	Jl	21	·89	1	Au	20●	·42
4616	1572	1437	27M	·9992	16·6695	17·392	**1515**	6	Ap	13	·67	1	My	13	20	2	Je	11	·73	4	Jl	11○	·26	5	Au	9	·79
4617	1573	1438	27M	·2579	5·7778	18·549	**1516**	4	Ap	2	·04	5	My	1	·57	7	My	31	·10	1 / 3	Je / Jl	29○ / 29	·63 / ·16	4	Au	27	·69
4618	1574	1439	27M	·5167	24·4167	11·682	**1517**	2	Ap	20	·93	4	My	20	·46	5	Je	18●	·99	7	Jl	18	·52	2	Au	17	·06
4619	1575	1440	27M	·7754	13·5250	7·840	**1518**	7	Ap	10	·30	1	My	9○	·82	3	Je	8●	·86	4	Jl	7	·89	6	Au	6	·42
4620	1576	1441	28M	·0342	2·6333	3·997	**1519**	4	Mr	30	·67	6 / 7	Ap / My	29○ / 28	·20 / ·73	2	Je	27	·26	3	Jl	26	·79	5	Au	25	·32
4621	1577	1442	27M	·2929	21·2722	2·130	**1520**	3	Ap	17○	·56	5	My	17	·10	6	Je	15	·63	1	Jl	15	·16	2	Au	13	·69
4622	1578	1443	27M	·5517	10·3805	25·842	**1521**	7	Ap	6●	·93	2	My	6	·46	3	Je	4	·99	5	Jl	4	·52	7	Au	3	·05
4623	1579	1444	27M	·8105	29·0194	23·975	**1522**	5 / 6	Mr / Ap	27 / 25	·30 / ·83	1	My	25	·36	2	Je	23	·89	4	Jl	23	·42	5	Au	21○	·95
4624	1580	1445	28M	·0692	18·1277	20·133	**1523**	4	Ap	15	·20	5	My	14	·78	7	Je	13	·26	1	Jl	12	·79	3	Au	11●○	·32
4625	1581	1446	27M	·3280	7·2360	16·290	**1524**	1	Ap	3	·56	3	My	3	·09	4	Je	1	·62	6	Jl	1	·16	7 / 2	Jl / Au	30 / 29	·69 / ·22
4626	1582	1447	27M	·5867	25·8749	14·423	**1525**	7	Ap	22	·46	2	My	22	·00	3	Je	20○	·52	5	Jl	20	·05	6	Au	18	·58
4627	1583	1448	27M	·8455	14·9832	10·580	**1526**	4	Ap	11	·83	6	My	11	·36	7	Je	9○	·89	2	Jl	9	·42	3	Au	7	·95
4628	1584	1449	28M	1042	4·0915	6·738	**1527**	2	Ap	1	·20	3	Ap	30	·73	5 / 6	My / Je	30●○ / 28	·26 / ·79	1	Jl	28	·32	2	Au	26	·85
4629	1585	1450	27M	·3680	22·7304	4·871	**1528**	1	Ap	19	·09	2	My	18●	·62	4	Je	17	·15	5	Jl	16	·68	7	Au	15	·22
4630	1586	1451	27M	6218	11·8387	1·028	**1529**	5	Ap	8○	·46	6	My	7	·99	1	Je	6	·52	3	Jl	6	·05	4	Au	4	·58
4631	1587	1452	27M	·8805	0·9470	24·740	**1530**	2●○ / 4	Mr / Ap	28 / 27	·83 / ·36	5	My	26	·89	7	Je	25	·42	1	Jl	24	·95	3	Au	23	·48
4632	1588	1453	28M	·1393	19·5858	22·873	**1531**	1	Ap	16	·72	3	My	16	·26	4	Je	14	·79	6	Jl	14	·32	7	Au	12	·85
4633	1589	1454	27M	·3980	8·6941	19·030	**1532**	6	Ap	5	·09	7	My	4	·62	2	Je	3	·15	3	Jl	2	·68	5 / 6	Au / Au	1 / 30●	·21 / ·74
4634	1590	1455	27M	·6568	27·3330	17·185	**1533**	4	Ap	23	·99	6	My	23	·52	1	Je	22	·05	2	Jl	21○	·58	4	Au	20●	·11
4635	1591	1456	27M	·9155	16·4413	13·321	**1534**	2	Ap	13	·36	3	My	12	·89	5	Je	11	·42	6	Jl	10○	·95	1	Au	9	·48
4636	1592	1457	28M	·1743	5·5498	9·478	**1535**	6	Ap	2	·72	1	My	2	·25	2	My	31	·78	4 / 5	Jl / Jl	30● / 29	·32 / ·85	7	Au	28	·38
4637	1593	1458	27M	·4330	24·1885	7·611	**1536**	5	Ap	20	·62	7	My	20○	·15	1	Je	18	·68	3	Jl	18●	·21	4	Au	16	·74
4638	1594	1459	27M	·6918	13·2988	3·769	**1537**	2	Ap	9	·99	4	My	9○	·52	6	Je	8	·05	7	Jl	7	·58	2	Au	6	·11

N.B.—For tithis by other siddhāntas add to the above algebraically as follows :—

Sūrya siddhānta—*cont.*

Āśvina.				Kārttika.				Mārgaśīrsha.				Pausha.				A.D.	Māgha.			A.D.	Phālguna.			Chaitra.			
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
6 S	9●	·48	1 O	9	·01	2 N	7	·54	4 D	7	·07	**86**	5 Jr	5	·60		7 F	4○	·13		1 Mr	5●	·66					
5 S	28	·37	6 O	27	·90	1 N	26	·43	2 D	25	·96	**87**	4 Jr	24○	·49		6 F	23	·02		7 Mr	24	·55					
2 S	17	·74	4 O	17	·27	5 N	15	·80	7 D	15	·33	**88**	1 Jr	13○	·86		3 F	12	·39		4 Mr	12	·92					
7 S	6	·11	1 O	5	·64	3 N	4	·17	4 D	3	·70	**89**	6 Jr	2	·23		7 Jr	31	·76		2 Mr	2	·29					
6 S	25	·00	7 O	24	·53	2 N	23○	·06	3 D	22●	·59	**90**	5 Jr	21	·12		6 F	19	·65		1 Mr	21	·19					
3 S	14	·37	4 O	13	·90	6 N	12○	·43	7 D	11	·96	**91**	2 Jr	10	·49		4 F	9	·02		5 Mr	10	·55					
7 S	3	·74	2 O	3	·27	3 N	1●○	·80	5 D	1	·33		6 D	30	·86	**92**	1 Jr	29	·39		2 F	27	·92					
6 S	21	.64	1 O	21●	·17	2 N	19	·70	4 D	19	·23	**93**	5 Jr	17	·76		7 F	16	·29		1 Mr	17○	·82					
4 S	11○	·00	5 O	10	·53	7 N	9	·06	1 D	8	·59	**94**	3 Jr	7	·12		4 F	5	·65		6 Mr	7○	·18					
2 S	29	·90	4 O	29	·43	5 N	27	·96	7 D	27	·49	**95**	2 Jr	26	·03		3 F	24●	·56		5 Mr	26	·0					
7 S	19	·27	1 O	18	·80	3 N	17	·33	4 D	16	·86	**96**	6 Jr	15○	·39		7 F	13●	·92		2 Mr	14	·45					
4 S	7	·64	6 O	7	·17	7 N	5	·70	2 D	5	·23	**97**	3 Jr	3○	·76		5 F	2	·29		6 Mr	3	·82					
3 S	26	·54	5 O	26	·07	6 N	24	·60	1 D	24○	·13	**98**	2 Jr	22	·66		4 F	21	·19		5 Mr	22	·72					
7 S	15	·90	2 O	15	·43	3 N	13	·96	5 D	13●	·49	**99**	7 Jr	12	·02		1 F	10	·55		3 Mr	12	·09					
5 S	5	·27	6 O	4	·80	1 N	3	·33	2 D	2	·86	**15**	4 Jr	1	·39	**00**	5 Jr	30	·92		7 F	29	·45					
4 S	23	·16	5 O	22○	·69	7 N	21	·22	1 D	20	·75	**01**	3 Jr	19	·28		4 F	17	·81		6 Mr	19	·34					
1 S	12	·53	3 O	12●○	·06	4 N	10	·59	6 D	10	·12	**02**	7 Jr	8	·65		2 F	7	·18		3 Mr	8	·71					
5 S	1	·89	7 O	1●○	·42	1 O	30	·95	3 N	29	·48		5 D	29	·01	**03**	6 Jr	27	·54	1 F	26	·07					
4 S	20●	·79	6 O	20	·32	7 N	18	·85	2 D	18	·38	**04**	3 Jr	16	·91					2 Mr	27●	·61					
2 S	9	·16	3 O	8	·69	5 N	7	·22	6 D	6	·75	**05**	1 Jr	5	·28		5 F	15○	·44		6 Mr	15	·97					
1 S	28	·06	2 O	27	·59	4 N	26	·12	5 D	25	·65	**06**	7 Jr	24●○	·18		2 F	3○	·81		4 Mr	5	·34					
5 S	17	·43	6 O	16	·96	1 N	15	·49	3 D	15	·02	**07**	4 Jr	13●	·55		1 F	22	·71		3 Mr	24	·24					
2 S	6	·79	4 O	6	·32	5 N	4	·85	7 D	4○	·38	**08**	1 Jr	2	·92		6 F	12	·08		7 Mr	13	·61					
1 S	24	·69	3 O	24	·22	4 N	22○	·75	6 D	22	·28	**09**	7 Jr	20	·81		3 F	1	·45		4 Mr	1	·98					
6 S	14	·06	7 O	13	·59	2 N	12●○	·12	3 D	11	·65	**10**	5 Jr	10	·18		2 F	19	·34		3 Mr	20	·87					
3 S	3	·42	4 O	2	·96	6 N	1	·49	1 D	1	·02		2 D	30	·55		6 F	8	·71		1 Mr	10	·24					
2 S	22○	·82	3 O	21	·85	5 N	20	·38	6 D	19	·91	**12**	1 Jr	18	·44	**11**	4 Jr	29	·08		5 F	27	·61					
6 S	10○	·69	1 O	10	·22	2 N	8	·75	4 D	8	·28	**13**	5 Jr	6	·81		2 F	16	·98		4 Mr	17○	·51					
5 S	29	·59	7 O	29	·12	1 N	27	·65	3 D	27	·18	**14**	4 Jr	25○	·71		7 F	5	·34		1 Mr	6●○	·87					
2 S	18	·95	4 O	18	·48	6 N	17	·02	7 D	16	·55	**15**	2 Jr	15○	·08		6 F	24	·24		7 Mr	25	·77					
7 S	8	·32	1 O	7	·85	3 N	6	·38	4 D	5	·91	**16**	6 Jr	4●○	·44		3 F	13	·61		5 Mr	15	·14					
6 S	26	·22	7 O	25	·75	2 N	24	·28	3 D	23	·81	**17**	5 Jr	22	·34		7 F	2	·97		2 Mr	3	·50					
3 S	15	·57	5 O	15	·12	6 N	13	·65	1 D	13●	·18	**18**	2 Jr	11	·71		6 F	20	·87		1 Mr	22	·40					
7 S	4	·95	2 O	4	·48	4 N	3○	·01	5 D	2	·54	**19**	7 Jr	1	·08		4 F	10	·24		5 Mr	11	·77					
6 S	23	·85	1 O	23○	·38	2 N	21	·91	4 D	21	·44	**20**	5 Jr	19	·97		1 Jr	30	·61		3 Mr	1	·14					
4 S	12	·22	5 O	11○	·75	7 N	10	·28	1 D	9	·81	**21**	3 Jr	8	·34		7 F	18	·50		2 Mr	19	·03					
1 S	1	·58	3 O	1	·12	**Mārgaśīrsha Kshaya**			6 N	29	·18		7 D	28	·71		4 F	6	·87		6 Mr	8	·40					
			4 O	30	·65							**23**	6 Jr	16	·60	**22**	2 Jr	27	·24		3 F	25○	·77					
7 S	20	·48	2 O	20	·01	3 N	18	·54	5 D	18	·07	**24**	3 Jr	5	·97		1 F	15○	·14		2 Mr	16	·67					
4 S	9	·85	6 O	9	·38	7 N	7	·91	2 D	7	·44	**25**	2 Jr	23	·87		5 F	4○	·50		7 Mr	5	·03					
3 S	27	·75	5 O	27	·28	6 N	25	·81	1 D	25	·34	**26**	7 Jr	13●	·24		4 F	22	·40		5 Mr	23	·93					
1 S	17	·11	2 O	16	·64	4 N	15	·18	5 D	14○	·71	**27**	4 Jr	2	·60		1 F	11	·77		3 Mr	13	·30					
5 S	6	·48	7 O	6	·01	1 N	4	·54	3 D	4○	·07						6 F	1	·13		7 Mr	2	·66					
4 S	25	·38	5 O	24	·91	7 N	23○	·44	1 D	22	·97	**28**	3 Jr	21	·50		5 F	20	·03		6 Mr	20	·56					
1 S	13	·75	3 O	13	·28	4 N	11●	·81	6 D	11	·34	**29**	7 Jr	9	·87		2 F	8	·40		3 Mr	9	·93					
6 S	3	·11	7 O	2○	·64	2 N	1●	·17	3 N	30	·70		5 D	30	·24	**30**	6 Jr	28	·77		1 F	27	·30					
5 S	22○	·01	6 O	21	·54	1 N	20	·07	2 D	19	·60	**31**	4 Jr	18	·13		5 F	16	·66		7 Mr	18○	·19					
2 S	11○	·38	3 O	10	·91	5 N	9	·44	6 D	8	·97	**32**	1 Jr	7	·50		3 F	6	·03		4 Mr	6	·56					
1 S	29	·28	2 O	28	·81	4 N	27	·34	5 D	26	·87	**33**	7 Jr	25○	·40		1 F	23	·93		3 Mr	25	·46					
5 S	18	·64	7 O	18	·17	1 N	16	·70	3 D	16	·23	**34**	4 Jr	14○	·76		6 F	13	·30		7 Mr	14	·83					
3 S	8	·01	4 O	7	·54	6 N	6	·07	7 D	5	·60	**35**	2 Jr	4	·13		3 F	2	·66		5 Mr	4	·19					
1 S	26	·91	3 O	26	·44	4 N	24	·97	6 D	24	·50	**36**	1 Jr	28	·03		2 F	21	·56		4 Mr	23	·09					
6 S	15	·27	7 O	14	·80	2 N	13○	·34	3 D	12	·87	**37**	5 Jr	11	·40		6 F	9	·98		1 Mr	11	·46					
3 S	4	·64	5 O	4	·17	6 N	2○	·70	1 D	2	·28		2 D	31	·76	**38**	4 Jr	30	·29		5 F	28	·82					

(1) for Árya siddhānta +·04; (2) for Brahma siddhānta —·09; and (3) for Siddhānta Śiromaṇi —·02.

TABLE II.—

Kaliyuga.	Vikrama era.	Śaka era.	Commencement of solar year. Month and day A.D.	Fraction of day.	First new moon in solar year.	Anomaly of first new moon.	Christian era. A.D.	**Vaiśākha.** Week-day.	Month.	Day.	Fraction.	**Jyeshṭha.** Week-day.	Month.	Day.	Fraction.	**Ashāḍha.** Week-day.	Month.	Day.	Fraction.	**Śrāvaṇa.** Week-day.	Month.	Day.	Fraction.	**Bhādrapada.** Week-day.	Month.	Day.	Fraction.
4639	1595	1460	27M	·9506	2·4057	27·481	**1538**	7	Mr	30	·36	1	Ap	28○	·89	4	Je	26	·95	6	Jl	26	·48	1	Au	25	·01
												3	My	28	·42												
4640	1596	1461	28M	·2093	21·0440	25·614	**1539**	6	Ap	18	·25	7	My	17	·78	2	Je	16	·31	3	Jl	15	·84	5	Au	14	·38
4641	1597	1462	27M	·4681	10·1523	21·771	**1540**	3	Ap	6●	·62	5	My	6	·15	6	Je	4	·68	1	Jl	4	·21	2	Au	2	·74
4642	1598	1463	27M	·7268	28·7912	19·904	**1541**	2	Ap	25	·52	4	My	25	·05	5	Je	23	·58	7	Jl	23	·11	1	Au	21●○	·64
4643	1599	1464	27M	·9856	17·8995	16·062	**1542**	6	Ap	14	·88	1	My	14	·42	2	Je	12	·95	4	Jl	12	·48	6	Au	11●	·01
4644	1600	1465	28M	·2443	7·0078	12·219	**1543**	4	Ap	4	·25	5	My	3	·78	7	Je	2	·31	1	Jl	1○	·84				
																				3	Jl	31	·37	4	Au	29	·90
4645	1601	1466	27M	·5031	25·6467	10·352	**1544**	3	Ap	22	·15	4	My	21	·68	6	Je	20○	·21	7	Jl	19	·74	2	Au	18	·27
4646	1602	1467	27M	·7619	14·7550	6·509	**1545**	7	Ap	11	·52	2	My	11	·05	3	Je	9●○	·58	5	Jl	9	·11	6	Au	7	·64
4647	1603	1468	28M	·0206	3·8633	2·667	**1546**	4	Mr	31	·88	6	Ap	30	·41	7	My	29	·94	4	Jl	28	·01	5	Au	26	·54
																2	Je	28	·47								
4648	1604	1469	28M	·2794	22·5022	0·800	**1547**	3	Ap	19○	·78	5	My	19●	·31	6	Je	17	·84	1	Jl	17	·37	2	Au	15	·90
4649	1605	1470	27M	·5381	11·6105	24·512	**1548**	1	Ap	8○	·15	2	My	7	·68	4	Je	6	·21	5	Jl	5	·74	7	Au	4	·27
4650	1606	1471	27M	·7969	0·7188	20·669	**1549**	5	Mr	28●○	·52	1	My	26	·58	3	Je	25	·11	4	Jl	24	·64	6	Au	23	·17
								7	Ap	27	·05																
4651	1607	1472	28M	·0556	19·3576	18·802	**1550**	4	Ap	16	·41	5	My	15	·94	7	Je	14	·47	2	Jl	14	·00	3	Au	12	·54
4652	1608	1473	28M	·3144	8·4659	14·959	**1551**	1	Ap	5	·78	3	My	5	·31	4	Je	3	·84	6	Jl	3	·37	7	Au	1○	·90
																								2	Au	31●	·43
4653	1609	1474	27M	·5782	27·1048	13·093	**1552**	7	Ap	23	·58	2	My	28	·21	3	Je	21	·74	5	Jl	21○	·27	6	Au	19	·80
4654	1610	1475	27M	·8319	16·2131	9·250	**1553**	5	Ap	13	·04	6	My	12	·58	1	Je	11	·11	2	Jl	10	·64	4	Au	9	·17
4655	1611	1476	28M	·0907	5·3214	5·407	**1554**	2	Ap	2	·41	3	My	1	·94	5	My	31○	·47	1	Jl	29	·54	3	Au	28	·07
																7	Je	30	·00								
4656	1612	1477	28M	·3494	23·9603	3·540	**1555**	1	Ap	21	·31	2	My	20○	·84	4	Je	19●	·37	5	Jl	18	·90	7	Au	17	·43
4657	1613	1478	27M	·6082	13·0686	27·253	**1556**	5	Ap	9	·68	7	My	9●○	·21	1	Je	7	·74	3	Jl	7	·27	4	An	5	·80
4658	1614	1479	27M	·8609	2·1769	23·410	**1557**	3	Mr	30	·04	4	Ap	28	·57	7	Je	26	·64	2	Jl	26	·17	3	Au	24	·70
												6	My	28	·10												
4659	1615	1480	28M	·1257	20·8158	21·543	**1558**	1	Ap	17●	·94	3	My	17	·47	5	Je	16	·00	6	Jl	15	·53	1	Au	14	·06
4660	1616	1481	28M	·3844	9·9241	17·700	**1559**	6	Ap	7	·31	7	My	6	·84	2	Je	5	·37	3	Jl	4	·90	5	Au	3	·43
4661	1617	1482	27M	·6432	28·5630	15·833	**1560**	5	Ap	25	·21	6	My	24	·74	1	Je	23	·27	2	Jl	22	·80	4	Au	21●○	·33
4662	1618	1483	27M	·9020	17·6713	11·991	**1561**	2	Ap	14	·57	4	My	14	·10	5	Je	12	·63	7	Jl	12	·16	1	Au	10●	·70
4663	1619	1484	28M	·1607	6·7796	8·148	**1562**	6	Ap	3	·94	1	My	3	·47	3	Je	2	·00	4	Jl	1○	·53	7	Au	29	·59
																				6	Jl	31	·06				
4664	1620	1485	28M	·4195	25·4185	6·281	**1563**	5	Ap	22	·84	7	My	22	·37	1	Je	20○	·90	3	Jl	20	·43	4	Au	18	·96
4665	1621	1486	27M	·6782	14·5268	2·438	**1564**	3	Ap	11	·20	4	My	10	·73	6	Je	9●	·27	7	Jl	8	·80	2	Au	7	·33
4666	1622	1487	27M	·9370	3·6351	26·150	**1565**	7	Mr	31	·57	2	Ap	30○	·10	3	My	29	·63	6	Jl	27	·69	1	An	26	·22
																5	Je	28	·16								
4667	1623	1488	28M	·1957	22·2740	24·283	**1566**	6	Ap	19○	·47	1	My	19	·00	2	Je	17	·53	4	Jl	17	·06	5	Au	15	·59
4668	1624	1489	28M	·4545	11·3822	20·440	**1567**	3	Ap	8●○	·84	5	My	8	·37	6	Je	6	·90	1	Jl	6	·43	2	Au	4	·96
4669	1625	1490	27M	·7133	0·4905	16·598	**1568**	1	Mr	28	·20	4	My	26	·26	5	Je	24	·79	7	Jl	24	·33	1	Au	22	·86
								2	Ap	26	·73																
4670	1626	1491	27M	·9720	19·1294	14·731	**1569**	7	Ap	16	·10	1	My	15	·63	3	Je	14	·16	4	Jl	13	·69	6	Au	12○	·22
4671	1627	1492	28M	·2308	8·2377	10·888	**1570**	4	Ap	5	·47	6	My	5	·00	7	Je	3	·53	2	Jl	3	·06	3	Au	1○	·59
																								5	Au	31	·12
4672	1628	1493	28M	·4895	26·8766	9·022	**1571**	3	Ap	24	·37	4	My	23	·90	6	Je	22	·43	7	Jl	21●○	96	2	Au	20	·49
4673	1629	1494	27M	·7483	15·9849	5·179	**1572**	7	Ap	12	·73	2	My	12	·26	3	Je	10○	·79	5	Jl	10●	·32	6	An	8	·85
4674	1630	1495	28M	·0070	5·0932	1·336	**1573**	5	Ap	2	·10	6	My	1	·63	1	My	31○	·16	4	Jl	29	·22	5	Au	27	·75
																2	Je	29	·69								
4675	1631	1496	28M	·2658	23·7321	27·024	**1574**	4	Ap	21	·00	5	My	20○	·53	7	Je	19	·06	1	Jl	18	·59	3	Au	17	·12
4676	1632	1497	28M	·5246	12·5404	23·181	**1575**	1	Ap	10	·36	2	My	9●	·89	4	Je	8	·42	5	Jl	7	·95	7	Au	6	·48
4677	1633	1498	27M	·7833	1·9487	19·339	**1576**	5	Mr	29○	·73	7	Ap	28	·26	3	Je	26	·32	4	Jl	25	·85	6	Au	24	·38
												1	My	27	·79												
4678	1634	1499	28M	·0421	20·5876	17·472	**1577**	4	Ap	17	·63	6	My	17	·16	7	Je	15	·69	2	Jl	15	·22	3	Au	13	·75
4679	1635	1500	28M	·3008	9·6959	13·629	**1578**	2	Ap	7	·00	3	My	6	53	5	Je	5	·06	6	Jl	4	·59	1	Au	3	·12
4680	1636	1501	28M	·5586	28·3348	11·762	**1579**	7	Ap	25	·89	2	My	25	·42	3	Je	23	·95	5	Jl	23	·49	7	Au	22●	·02
4681	1637	1502	27M	·8183	17·4431	7·919	**1580**	5	Ap	14	·26	6	My	13	·79	1	Je	12	·32	2	Jl	11○	·85	4	Au	10	·38
4682	1638	1503	28M	·0771	6·5514	4·077	**1581**	2	Ap	3	·63	4	My	3	·16	5	Je	1	·69	7	Jl	1○	·22	3	Au	29	·28
																				1	Jl	30	·75				
4683	1639	1504	28M	·3368	25·1903	2·210	**1582**	1	Ap	22	·53	3	My	22	·06	4	Je	20●	·59	6	Jl	20	·12	7	Au	18	·65
4684	1640	1505	28M	·5946	14·2886	25·922	**1583**	5	Ap	11	·89	7	My	11○	·42	1	Je	9	·95	3	Jl	9	·48	5	Au	8	·02
4685	1641	1506	27M	·8534	3·4069	22·079	**1584**	3	Mr	31	·26	4	Ap	29○	·79	6	My	29	·32	2	Jl	27	·38	3	Au	25	·91
																7	Je	27	·85								
4686	1642	1507	28M	·1121	22·0457	20·212	**1585**	2	Ap	19○	·16	3	My	18	·69	5	Je	17	·22	6	Jl	16	·75	1	Au	15	·28
4687	1643	1508	28M	·3709	11·1540	16·370	**1586**	6	Ap	8	·52	1	My	8	·05	2	Je	6	·59	4	Jl	6	·12	5	An	4	·65
4688	1644	1509	28M	·6296	0·2623	12·527	**1587**	3	Mr	28	·89	6	My	26	·95	1	Je	25	·48	3	Jl	25	·01	4	Au	23○	·54
								5	Ap	27	·42																
4689	1645	1510	27M	·8884	18·9012	10·660	**1588**	2	Ap	15	·79	4	My	15	·32	5	Je	13	·85	7	Jl	13	·38	1	Au	11○	·91
4690	1646	1511	28M	·1471	8·0095	6·817	**1589**	7	Ap	5	·16	1	My	4	·69	3	Je	3	·22	4	Jl	2	·75	6	Au	8●○	·28
																								7	Au	30	·81
4691	1647	1512	28M	·4059	26·6484	4·951	**1590**	6	Ap	24	·05	7	My	23	·58	2	Je	22○	·11	3	Jl	21●	·65	5	Au	20	·18
4692	1648	1513	28M	·6647	15·7567	1·108	**1591**	3	Ap	13	·42	4	My	12	·95	6	Je	11○	·48	1	Jl	11	·01	2	Au	9	·54

N.B.—For tithis by other siddhāntas add to the above algebraically as follows :—

Sūrya siddhānta—*cont.*

Āśvina.			Kārttika.			Mārgaśīrsha.			Pausha.			A.D.	Māgha.			A.D.	Phālguna.			Chaitra.		
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
2 S	23	·54	4 O	23○	·07	5 N	21	·60	7 D	21	·13	**39**	1 Jr	19	·66		3 F	18	·19	4 Mr	19	·72
6 S	12	·91	1 O	12●	·44	2 N	10	·97	4 D	10	·50	**40**	6 Jr	9	·03		7 F	7	·56	2 Mr	8○	·09
4 S	1○	·27	7 O	30	·33	1 N	28	·86								**41**	4 Jr	26	·93	6 F	25○	·46
5 S	30	·80							**Pausha Kshaya**				3 D	28	·40					7 Mr	26	·99
3 S	20	·17	4 O	19	·70	6 N	18	·23	7 D	17	·76	**42**	2 Jr	16	·29		3 F	14○	·82	5 Mr	16	·35
7 S	9	·54	2 O	9	·07	3 N	7	·60	5 D	7	13	**43**	6 Jr	5	·66		1 F	4	·19	2 Mr.	5	·72
6 S	28	·44	7 O	27	·97	2 N	26	·50	4 D	26○	·03	**44**	5 Jr	24●	·56		7 F	23	·09	1 Mr	23	·62
3 S	16	·80	5 O	16	·33	6 N	14	·86	1 D	14○	·39	**45**	2 Jr	12	·92		4 F	11	·45	5 Mr	12	·98
1 S	6	·17	2 O	5	·70	4 N	4	·23	5 D	3●○	·76	**46**	7 Jr	2	·29		1 Jr	31	·82	3 Mr	2	·35
7 S	25	·07	1 O	24	·60	3 N	23●	·13	4 D	22	·66	**47**	6 Jr	21	·19		7 F	19	·72	2 Mr	21	·25
4 S	14	·43	5 O	13○	·96	7 N	12	·49	2 D	12	·02	**48**	3 Jr	10	·55		5 F	9	·08	6 Mr	9	·62
1 S	2	·80	3 O	2○	·33	4 O	31	·86	6 N	30	·39		7 D	29	·92	**49**	2 Jr	28	·45	3 F	26	·98
7 S	21●○	·70	2 O	21	·23	3 N	19	·76	5 D	19	.29	**50**	6 Jr	17	·82		1 F	16	·35	2 Mr	17●	·88
5 S	11	·07	6 O	10	·60	1 N	9	·13	2 D	8	·66	**51**	4 Jr	7	·19		5 F	5○	·72	7 Mr	7	·25
3 S	29	·96	5 O	29	·49	7 N	28	·02	1 D	27	·55	**52**	3 Jr	26○	·08		4 F	24	·61	6 Mr	25	·14
1 S	18	·33	2 O	17	·86	4 N	16	·39	5 D	15	·92	**53**	7 Jr	14●	·45		1 F	12	·98	3 Mr	14	·51
5 S	7	·70	7 O	7	·23	1 N	5	·76	3 D	5	·29	**54**	4 Jr	3	·82		6 F	2	·35	7 Mr	3	·88
4 S	26	·60	6 O	26	·13	7 N	24○	·66	2 D	24	·19	**55**	3 Jr	22	·72		5 F	21	·25	6 Mr	22	·78
1 S	15	·96	3 O	15	·49	5 N	14●○	·02	6 D	13	·55	**56**	1 Jr	12	·08		2 F	10	·61	4 Mr	11	·14
6 S	4	·33	7 O	3	·86	2 N	2●○	·39	3 D	1	·92		5 D	31	·45	**57**	6 Jr	29	·98	1 F	28	·51
5 S	23	·22	6 O	22●	·76	1 N	21	·29	2 D	20	·82	**58**	4 Jr	19	·35		5 F	17	·88	7 Mr	19○	·41
2 S	12○	·59	4 O	12	·12	5 N	10	·65	7 D	10	·18	**59**	1 Jr	8	·71		3 F	7	·24	4 Mr	8○	·77
6 S	1○	·96	3 O	31	·02	4 N	29	·55	6 D	29	·08	**60**	7 Jr	27	·61		2 F	26●○	·14	3 Mr	26	·67
1 O	1	·49																				
5 S	19	·86	7 O	19	·39	1 N	17	·92	3 D	17	·45	**61**	4 Jr	15	·98		6 F	14●	·51	1 Mr	16	·04
3 S	9	·22	4 O	8	·75	6 N	7	·28	7 D	6	·81	**62**	2 Jr	5○	·34		3 F	3	·87	5 Mr	5	·40
2 S	28	·12	3 O	27	·65	5 N	26	·18	6 D	25○	·71	**63**	1 Jr	24	·24		2 F	22	·77	4 Mr	24	·30
6 S	17	·49	1 O	17	·02	2 N	15	·55	4 D	15●○	·08	**64**	5 Jr	13	·61		7 F	12	·14	1 Mr	12	·67
3 S	5	·86	5 O	5	·39	6 N	3	·92	1 D	3	·45	**65**	2 Jr	1	·98		4 Jr	31	·51	6 Mr	2	·04
2 S	24	·75	4 O	24○	·28	5 N	22	·81	7 D	22	·34	**66**	1 Jr	20	·87		3 F	19	·40	4 Mr	20	·93
7 S	14	·12	1 O	13○	·65	3 N	12	·18	4 D	11	·71	**67**	6 Jr	10	·24		7 F	8	·77	2 Mr	10	·30
4 S	3	·49	6 O	3○	02	7 N	1	·55	2 D	1	·08		3 D	30	·61	**68**	5 Jr	29	·14	6 F	27	·67
3 S	21●	·38	4 O	20	·91	6 N	19	·44	7 D	18	·97	**69**	2 Jr	17	·50		4 F	16○	·03	5 Mr	17	·56
7 S	10	·75	2 O	10	·28	3 N	8	·81	5 D	8	·34	**70**	6 Jr	6	·87		1 F	5●○	·40	2 Mr	6	·93
6 S	29	·65	1 O	29	·18	2 N	27	·71	4 D	27	·24	**71**	5 Jr	25	·77		7 F	24	·30	1 Mr	25	·83
4 S	19	·02	5 O	18	·55	7 N	17	·08	1 D	16	·61	**72**	3 Jr	15●	·14		4 F	13	·67	6 Mr	14	·20
1 S	7	·38	2 O	6	·91	4 N	5	·44	5 D	4○	·97	**73**	7 Jr	3	·50		2 F	2	·03	3 Mr	3	·56
7 S	26	·28	1 O	25	·81	3 N	24○	·34	4 D	23	·87	**74**	6 Jr	22	·40		7 F	20	·93	2 Mr	22	·46
4 S	15	·65	6 O	15	·18	7 N	13○	·71	2 D	13	·24	**75**	3 Jr	11	·77		5 F	10	·30	6 Mr	11	·83
2 S	5	·01	3 O	4	·54	5 N	3	·07	6 D	2	·60	**76**	1 Jr	1	·13		2 Jr	30	·66	4 F	29	·19
7 S	22○	·91	2 O	22	·44	3 N	20	·97	5 D	20	·50	**77**	7 Jr	19	·03		1 F	17	·56	3 Mr	19○	·09
5 S	12○	·28	6 O	11	·81	1 N	10	·34	2 D	9	·87	**78**	4 Jr	8	·40		5 F	6	·93	7 Mr	8●○	·46
2 S	1○	·65	5 O	30	71	7 N	29	·24	1 D	28	·77	**79**	3 Jr	27	·30		4 F	25	83	6 Mr	27	·36
4 O	1	·18																				
1 S	20	·54	3 O	20	·07	4 N	18	·61	6 D	18	·13	**80**	7 Jr	16○	·66		2 F	15●	·19	3 Mr	15	·72
5 S	8	·91	7 O	8	·44	1 N	6	·97	3 D	6	·50	**81**	5 Jr	5○	·03		6 F	3	·56	1 Mr	5	·09
4 S	27	·81	6 O	27	·34	7 N	25	·87	2 D	25○	·40	**82**	3 Jr	23	·93		5 F	22	·46	6 Mr	23	·99
2 S	17	·18	3 O	16	·71	5 N	15	·24	6 D	14●	·77	**83**	1 Jr	13	·30		2 F	11	·83	4 Mr	13	·36
6 S	6	·55	1 O	6	·08	2 N	4○	·61	4 D	4●	·14	**84**	5 Jr	2	·67		7 F	1	·20	1 Mr	1	·73
5 S	24	·44	6 O	23○	·97	1 N	22	·50	3 D	22	·03	**85**	4 Jr	20	·57		6 F	19	·10	7 Mr	20	·63
2 S	13	·81	4 O	13○	·34	5 N	11	·87	7 D	11	·40	**86**	1 Jr	9	·93		3 F	8	·46	4 Mr	9	·99
7 S	3	·18	1 O	2	·71	3 N	1	·24	4 N	30	·77		6 D	30	·30	**87**	7 Jr	28	·83	2 F	27○	·36
6 S	22●	·07	7 O	21	·61	2 N	20	·14	3 D	19	·67	**88**	5 Jr	18	·20		6 F	16○	·73	1 Mr	17	·26
3 S	10	·44	4 O	9	·97	6 N	8	·50	1 D	8	·03	**89**	2 Jr	6	·56		4 F	5●	·09	5 Mr	6	·63
2 S	29	·34	3 O	28	·87	5 N	27	·40	6 D	26	·93	**90**	1 Jr	25	·46		2 F	23	·99	4 Mr	25	·52
6 S	18	·71	1 O	18	·24	2 N	16	·77	4 D	16○	·30	**91**	5 Jr	14	·83		7 F	13	·36	1 Mr	14	·89
4 S	8	·07	5 O	7	·60	7 N	6	·13	1 D	5○	·67	**92**	3 Jr	4	·20		4 F	2	·73	6 Mr	3	·26

(1) for Ārya siddhānta +·04; (2) for Brahma siddhānta −·09; and (3) for Siddhānta Śiromaṇi −·03.

TABLE II.—

Kaliyuga.	Vikrama era.	Śaka era.	Commencement of solar year. Month and day A.D.	Fraction of day.	First new moon in solar year.	Anomaly of first new moon.	Christian era. A.D.	Vaiśākha. Week-day.	Month.	Day.	Fraction.	Jyeshṭha. Week-day.	Month.	Day.	Fraction.	Āshāḍha. Week-day.	Month.	Day.	Fraction.	Śrāvaṇa. Week-day.	Month.	Day.	Fraction.	Bhādrapada. Week-day.	Month.	Day.	Fraction.
4693	1649	1514	27M	·9234	4·8650	24·820	**1592**	7	Ap	1	·79	2	My	1	·32	3	My	30○	·85	6	Jl	28	·91	1	Au	27	44
4694	1650	1515	28M	·1822	23·5089	22·953	**1593**	6	Ap	20	·69	1	My	20●		5	Je	29	·38								
4695	1651	1516	28M	·4409	12·6122	19·110	**1594**	4	Ap	10○	·05	5	My	9●	·22	2	Je	18	·75	4	Jl	18	·28	5	Au	16	·81
4696	1652	1517	28M	·6937	1·7205	15·268	**1595**	1	Mr	30○	·42	2	Ap	28	·58	7	Je	8	·11	1	Jl	7	·64	3	Au	6	·17
4697	1653	1518	27M	·9584	20·3594	13·401	**1596**	7	Ap	17		4	My	28	·95	6	Je	27	·01	7	Ji	26	·54	2	Au	25	·07
4698	1654	1519	28M	·2172	9·4677	9·558	**1597**	4	Ap	6	·32	1	My	16	·48												
4699	1655	1520	28M	·4759	28·1066	7·691	**1598**	3	Ap	25	·68	6	My	6	·85	3	Je	15	·38	4	Jl	14	·91	6	Au	13	·44
4700	1656	1521	28M	·7347	17·2149	3·848	**1599**	7	Ap	14	·58	5	My	25	·21	7	Je	4	·75	2	Jl	4	·28	3	Au	2	·81
4701	1657	1522	27M	·9935	6·3233	0·128	**1600**	5	Ap	3	·95	2	My	14	·11	6	Je	23	·64	1	Jl	23○	·17	2	Au	21	·70
4702	1658	1523	28M	·2522	24·9621	25·816	**1601**	4	Ap	22	·32	6	My	2	·48	4	Je	13	·01	5	Jl	12○	·54	7	Au	11	·07
4703	1659	1524	28M	·5110	14·0704	21·973	**1602**	1	Ap	11	·21	5	My	21○	·85	1	Je	1	·38	2	Je	30●	·91	5	Au	28	·97
4704	1660	1525	28M	·7697	3·1787	18·130	**1603**	5	Mr	31	·58	3	My	11○						4	Jl	30	·44				
4705	1661	1526	28M	·0285	21·8175	16·264	**1604**	4	Ap	18●	·95	7	Ap	30●○	·74	7	Je	20●	·27	1	Je	19	·81	3	Au	18	·34
4706	1662	1527	28M	·2872	10·9258	12·421	**1605**	2	Ap	8●	·85	6	My	18	·11	4	Je	9	·64	6	Jl	9	·17	7	Au	7	·70
4707	1663	1528	28M	·5460	0·0341	8·578	**1606**	1	Ap	27	·21	3	My	7	·58	3	My	30	·01	5	Jl	28	·07	6	Au	26	·60
4708	1664	1529	28M	·8048	18·6730	6·711	**1607**	5	Ap	16	·11	2	My	26	·74	3	Je	28	·54								
4709	1665	1530	28M	·0635	7·7813	2·868	**1608**	2	Ap	4	·48	7	My	16	·38	7	Je	16	·91	2	Jl	16	·44	3	Au	14	·97
4710	1666	1531	28M	·3223	26·4202	1·002	**1609**	1	Ap	23	·84	4	My	4	·27	5	Je	6	·91	6	Jl	5	·80	1	Au	4	·33
4711	1667	1532	28M	·5810	15·5285	24·714	**1610**	6	Ap	13	·74	3	My	23	·27	4	Je	21○	·80	6	Jl	21	·33	7	Au	19	·86
4712	1668	1533	28M	·8398	4·6368	20·871	**1611**	3	Ap	2	·11	7	My	12	·64	2	Je	11●○	·17	3	Jl	10	·70	5	Au	9	·23
4713	1669	1534	28M	·0985	23·2757	19·004	**1612**	2	Ap	20○	·48	5	My	2	·01	6	My	31	·54	2	Jl	29	·60	4	Au	28	·13
4714	1670	1535	28M	·3573	12·3840	15·161	**1613**	6	Ap	9○	·37	3	My	19●		1	Je	30	·07								
4715	1671	1536	28M	·6161	1·4923	11·319	**1614**	4	Mr	30○	·74	1	My	9	·90	5	Je	18	·43	6	Jl	17	·97	1	Au	16	·50
4716	1672	1537	28M	·8748	20·1312	9·452	**1615**	3	Ap	18	·11	5	Ap	28	·64	5	Je	7	·80	4	Jl	7	·33	5	Au	5	·86
4717	1673	1538	28M	·1336	9·2395	5·609	**1616**	7	Ap	6		7	My	28	·17												
4718	1674	1539	28M	·3923	27·8784	3·742	**1617**	6	Ap	25	·01	4	My	17	·54	6	Je	26	·70	3	Jl	26	·23	4	Au	24	·76
4719	1675	1540	28M	·6511	16·9867	27·454	**1618**	3	Ap	14	·37	1	My	5	·90	3	Je	4	·43	4	Jl	3	·96	6	Au	2○	·49
4720	1676	1541	28M	·9098	6·0950	23·611	**1619**	1	Ap	4	·27	7	My	24	·80	2	Je	23	·33	3	Jl	22●○	·86	5	Au	21	·39
4721	1677	1542	28M	·1686	24·7338	21·745	**1620**	6	Ap	21	·64	5	My	14	·17	6	Je	12	·70	1	Jl	12	·23	2	Au	10	·76
4722	1678	1543	28M	·4274	13·8421	17·902	**1621**	4	Ap	11	·00	2	My	3	·53	4	Je	2○	·07	5	Jl	1●	·60	1	Au	29	·66
4723	1679	1544	28M	·6861	2·9504	14·059	**1622**	1	Mr	31										7	Jl	31	·13				
4724	1680	1545	28M	·9449	21·5893	12·192	**1623**	7	Ap	19	·90	1	My	21○	·43	2	Je	19	·86	4	Jl	19	·49	6	Au	18	·02
4725	1681	1546	28M	·2038	10·6976	8·350	**1624**	4	Ap	7	·27	5	My	10●○	·80	7	Je	9	·33	1	Jl	8	·86	3	Au	7	·39
4726	1682	1547	28M	·4624	29·3385	6·483	**1625**	3	Ap	26	·64	3	Ap	30	·17	4	My	29	·70	7	Jl	27	·23	6	Au	26	·29
4727	1683	1548	28M	·7211	18·4448	2·640	**1626**	1	Ap	16	·53	2	My	19		6	Je	28									
4728	1684	1549	28M	·9799	7·5531	26·352	**1627**	5	Ap	5	·06	3	My	7	·43	7	Je	17	·59	5	Jl	17	·13	6	Au	15	·66
4729	1685	1550	28M	·2388	26·1920	24·485	**1628**	4	Ap	23	·90	6	My	7	·96	3	Je	5	·49	2	Jl	5	·96	4	Au	4	·02
4730	1686	1551	28M	·4974	15·3003	20·643	**1629**	1	Ap	12	·80	5	My	26	·33	6	Je	24	·86	1	Jl	24	·39	2	Au	22○	·92
4731	1687	1552	28M	·7562	4·4086	16·800	**1630**	6	Ap	2	·17	2	My	15	·70	4	Je	14	·23	5	Jl	13	·76	7	Au	12	·29
4732	1688	1553	29M	·0149	23·0475	14·933	**1631**	5	Ap	21○	·53	7	My	5	·06	1	Je	3	·59	3	Jl	3○	·12	6	Au	31	·19
4733	1689	1554	28M	·2737	12·1558	11·090	**1632**	2	Ap	9●○										4	Au	1●	·65				
4734	1690	1555	28M	·5324	1·2641	7·248	**1633**	6	Mr	29	·43	3	My	8	·96	7	Je	21○	·49	2	Jl	21	·02	3	Au	19	·55
4735	1691	1556	28M	·7912	19·9030	5·381	**1634**	1	Ap	28	·80	2	My	27	·33	4	Je	10●	·33	6	Jl	10	·86	7	Au	8	·92
4736	1692	1557	29M	·0499	9·0113	1·538	**1635**	5	Ap	17	·69	7	My	17	·86	4	Je	26	·39	5	Jl	25	·92	7	Au	24	·45
4737	1693	1558	28M	·3087	27·6502	27·226	**1636**	3	Ap	7	·06	4	My	6	·59	6	Je	5	·12	7	Jl	4	·65	4	Au	13○	·82
4738	1694	1559	28M	·5675	16·7585	23·383	**1637**	1	Ap	24	·96	3	My	24	·49	5	Je	23	·02	6	Jl	22●○	·55	1	Au	21	·08
4739	1695	1560	28M	·8262	5·8668	19·540	**1638**	6	Ap	14	·33	7	My	13	·86	2	Je	12	·39	3	Jl	11	·92	5	Au	10	·45
4740	1696	1561	29M	·0850	24·5056	17·674	**1639**	3	Ap	3	·69	5	My	3	·22	6	Je	1○	·75	1	Jl	1	·28	4	Au	29	·35
4741	1697	1562	28M	·3437	13·6139	13·831	**1640**	2	Ap	22	·59	4	My	22○						2	Jl	30	·81				
4742	1698	1563	28M	·6025	2·7222	9·988	**1641**	6	Ap	10	·96	1	My	10	·12	5	Je	20	·65	7	Jl	20	·18	1	Au	18	·71
4743	1699	1564	28M	·8612	21·3611	8·121	**1642**	4	Ap	31○	·32	5	Ap	29	·49	3	Je	9	·02	4	Jl	8	·55	6	Au	7	·08
4744	1700	1565	29M	·1200	10·4694	4·279	**1643**	3	Ap	19		7	My	29	·39												
4745	1701	1566	28M	·3787	29·1083	2·412	**1644**	7	Ap	8	·22	4	My	18	·75	6	Je	17	·28	7	Jl	16	·81	2	Au	15	·34
4746	1702	1567	28M	·6375	18·2166	26·124	**1645**	6	Ap	26	·59	2	My	8	·12	3	Je	6	·65	5	Jl	6	·18	6	Au	4	·71
4747	1703	1568	28M	·8963	7·3249	22·281	**1646**	3	Ap	3	·49	1	My	26	·02	2	Je	24	·55	4	Jl	24	·08	5	Au	22●	·61
								1	Ap	29	·85	5	My	15	·38	6	Je	13	·91	1	Jl	13○	·45	2	Au	11●	·98
								7	Ap	8	·59	2	My	8	·75	4	Je	3	·28	5	Jl	2○	·81	1	Au	30	·87
								6	Ap	26	·49	1	My	26	·02	2	Je	24	·55	4	Jl	24	·08	5	Au	22●	·61
								3	Ap	15	·85	5	My	15	·38	6	Je	13	·91	1	Jl	13○	·45	2	Au	11●	·98
								1	Ap	5	·22	2	My	4	·75	4	Je	3	·28	5	Jl	2○	·81	1	Au	30	·87
																				7	Au	1	·34				

N.B.—For tithis by other siddhāntas add to the above algebraically as follows:—

Sūrya siddhānta—*cont.*

Āśvina.				Kārttika.				Mārgaśīrsha.				Pausha.				A.D.	Māgha.				A.D.	Phālguna.				Chaitra.			
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
2	S	25	·97	4	O	25	·50	6	N	24○	·03	7	D	23	·56	**93**	2	Jr	22	·09		3	F	20	·62	5	Mr	22	·15
7	S	15	·34	1	O	14	·87	3	N	13●	·40	4	D	12	·93	**94**	6	Jr	11	·46		7	F	9	·99	2	Mr	11	·52
4	S	4	·71	6	O	4○	·24	7	N	2	·77	2	D	2	·30		3	D	31	·83	**95**	6	Jr	30	·86	6	F	28	·89
3	S	23●○	·60	5	O	23	·13	6	N	21	·66	1	D	21	·19	**96**	2	Jr	19	·73		4	F	18	·26	5	Mr	18○	·79
7	S	11●○	·97	2	O	11	·50	4	N	10	·03	5	D	9	·56	**97**	7	Jr	8	·09		1	F	6	·62	3	Mr	8●	·15
5	S	1	·34	1	O	30	·40	2	N	28	·93	4	D	28	·46	**98**	5	Jr	26○	·99		7	F	25	·52	2	Mr	27	·05
6	S	30	·87																										
4	S	20	·23	5	O	19	·77	7	N	18	·30	1	D	17	·83	**99**	3	Jr	16○	·36		4	F	14●	·89	6	Mr	16	·42
1	S	9	·60	3	O	9	·13	4	N	7	·66	6	D	7	·19	**16**	7	Jr	5○	·72	**00**	2	F	4	·25	3	Mr	4	·79
7	S	27	·50	2	O	27	·03	3	N	25	·56	5	D	25●	·09	**01**	6	Jr	23	·62		1	F	22	·15	2	Mr	23	·68
4	S	16	·87	6	O	16	·40	7	N	14○	·93	2	D	14	·46	**02**	3	Jr	12	·99		5	F	11	·52	7	Mr	13	·05
2	S	6	·23	3	O	5	·76	5	N	4○	·29	6	D	3	·83	**03**	1	Jr	2	·36		2	Jr	31	·89	4	Mr	2	42
1	S	25	·13	2	O	24○	·66	4	N	23	·19	5	D	22	·72	**04**	7	Jr	21	·25		1	F	19	·78	3	Mr	20	·31
5	S	13	·50	7	O	13	·03	1	N	11	·56	3	D	11	·09	**05**	4	Jr	9	·62		6	F	8	·15	7	Mr	9○	·68
2	S	2○	·87	4	O	2	·40	5	N	31	·93	7	N	30	·46		1	D	29	·99	**06**	3	Jr	28	·52	5	F	27	·05
																										6	Mr	28	·58
1	S	21	·76	3	O	21	·29	4	N	19	·82	6	D	19	·35	**07**	7	Jr	17	·89		2	F	16●	·42	3	Mr	17	·95
6	S	11	·13	7	O	10	·66	2	N	9	·19	3	D	8	·72	**08**	5	Jr	7	·25		6	F	5●	·78	1	Mr	6	·31
5	S	29	·03	6	O	28	·56	1	N	27	·09	2	D	26○	·62	**09**	4	Jr	25	·15		5	F	23	·68	7	Mr	25	·21
2	S	18	·39	3	O	17	·93	5	N	16	·46	6	D	15●○	·99	**10**	1	Jr	14	·52		3	F	13	·05	4	Mr	14	·58
6	S	7	·76	1	O	7	·29	2	N	5	·82	4	D	5●○	·35	**11**	5	Jr	3	·88		7	F	2	·41	1	Mr	3	·95
5	S	26	·66	7	O	26	·19	1	N	24●	·72	3	D	24	·25	**12**	4	Jr	22	·78		6	F	21	·31	7	Mr	21	·84
3	S	15	·03	4	O	14○	·56	6	N	13	·09	7	D	12	·62	**13**	2	Jr	11	·15		3	F	9	·68	5	Mr	11	·21
7	S	4	·39	1	O	3○	·92	3	N	2	·45	4	D	1	·99		6	D	31	·52	**14**	1	Jr	30	·05	2	F	28	·58
6	S	23●○	·29	7	O	22	·82	2	N	21	·35	3	D	20	·88	**15**	5	Jr	19	·41		6	F	17	·94	1	Mr	19●	·47
3	S	12	·66	5	O	12	·19	6	N	10	·72	1	D	10	·25	**16**	2	Jr	8	·78		4	F	7○	·31	5	Mr	7	·84
1	S	1●	·03	4	O	30	·09	5	N	28	·62	7	D	28	·15	**17**	1	Jr	26○	·68		3	F	25	·21	4	Mr	26	·74
2	S	30	·56																										
6	S	19	·92	1	O	19	·45	2	N	17	·98	4	D	17	·51	**18**	6	Jr	16○	·05		7	F	14	·58	2	Mr	16	·11
4	S	9	·29	5	O	8	·82	7	N	7	·35	1	D	6	·88	**19**	3	Jr	5	·41		4	F	3	·94	6	Mr	5	·47
3	S	28	·19	4	O	27	·72	6	N	26○	·25	7	D	25	·78	**20**	2	Jr	24	·31		3	F	22	·84	5	Mr	23	·37
7	S	16	·55	2	O	16	·09	3	N	14○	·62	5	D	14	·15	**21**	6	Jr	12	·68		1	F	11	·21	2	Mr	12	·74
4	S	5	·92	6	O	5	·45	7	N	3○	·98	2	D	3	·51	**22**	4	Jr	2	·04		5	Jr	31	·57	7	Mr	2	·11
3	S	24	·82	5	O	24●	·35	6	N	22	·88	1	D	22	·41	**23**	2	Jr	20	·94		4	F	19	·47	6	Mr	21○	·00
1	S	14○	·19	2	O	13	·72	4	N	12	·25	5	D	11	·78	**24**	7	Jr	10	·31		1	F	8	·84	3	Mr	9●○	·37
5	S	2○	·55	7	O	2	·08	1	O	31	·61	3	N	30	·15		4	D	29	·68	**25**	6	Jr	28	·21	7	F	26○	·74
																										2	Mr	28	·27
4	S	21	·45	5	O	20	·98	7	N	19	·51	2	D	19	·04	**26**	3	Jr	17	·57		5	F	16●	·10	6	Mr	17	·63
1	S	10	·82	3	O	10	·35	4	N	8	·88	6	D	8	·41	**27**	7	Jr	6○	·94		2	F	5	·47	4	Mr	7	·00
7	S	29	·72	2	O	29	·25	3	N	27	·78	5	D	27○	·31	**28**	6	Jr	25	·84		1	F	24	·37	2	Mr	24	90
5	S	18	·08	6	O	17	·61	1	N	16	·14	2	D	15○	·67	**29**	4	Jr	14	·21		5	F	12	·74	7	Mr	14	·27
2	S	7	·45	3	O	6	·98	5	N	5	·51	7	D	5	·04	**30**	1	Jr	3	·57		3	F	2	·10	4	Mr	3	·63
1	S	26	·35	2	O	25○	·88	4	N	24●	·41	5	D	23	·94	**31**	7	Jr	22	·47		2	F	21	·00	3	Mr	22	·53
5	S	15	·71	7	O	15●○	·25	1	N	13	·78	3	D	13	·31	**32**	4	Jr	11	·84		6	F	10	·37	7	Mr	10	·90
3	S	4	·08	4	O	3○	·61	6	N	2	·14	7	D	1	·67		2	D	31	·20	**33**	3	Jr	29	·73	5	F	28	·27
1	S	22●	·98	3	O	22	·51	5	N	21	·04	6	D	20	·57	**34**	1	Jr	19	·10		2	F	17○	·63	4	Mr	19●	·16
6	S	12	·35	7	O	11	·88	2	N	10	·41	3	D	9	·94	**35**	5	Jr	8	·47		7	F	7○	·00	1	Mr	8	·53
5	O	1	·24	6	O	30	·77	1	N	29	·31	2	D	28	·84	**36**	4	Jr	27○	·37		5	F	25	·90	7	Mr	26	·43
2	S	19	·61	4	O	19	·14	5	N	17	·67	7	D	17	·20	**37**	1	Jr	15●	·73		3	F	14	·26	4	Mr	15	79
6	S	8	·98	1	O	8	·51	3	N	7	·04	4	D	6○	·57	**38**	6	Jr	5●	·10		7	F	3	·63	2	Mr	5	·16
5	S	27	·88	7	O	27	·41	1	N	25○	·94	3	D	25	·47	**39**	5	Jr	24	·00		6	F	22	·53	1	Mr	24	·06
3	S	17	·24	4	O	16	·77	6	N	15○	·30	7	D	14	·83	**40**	2	Jr	13	·37		3	F	11	·90	5	Mr	12	·43
7	S	5	·61	2	O	5	·14	3	N	3	·67	5	D	3	·20	**41**	6	Jr	1	·73		1	Jr	31	·26	2	Mr	1	·79
6	S	24○	·51	1	O	24●	·04	2	N	22	·57	4	D	22	·10	**42**	5	Jr	20	·63		7	F	19	·16	1	Mr	20○	·69
3	S	13○	·87	5	O	13	·41	6	N	11	·94	1	D	11	·47	**43**	3	Jr	10	·00		4	F	8	·53	6	Mr	10●○	·06
1	S	3●○	·24	2	O	2	·77	4	N	1	·30	5	N	30	·83		7	D	30	·36	**44**	1	Jr	28	·89	3	F	27	·43
																										4	Mr	27	·96
7	S	21	·14	1	O	20	·67	3	N	19	·20	4	D	18	·73	**45**	6	Jr	17○	·26		7	F	15	·79	2	Mr	17	·32
4	S	10	·51	6	O	10	·04	7	N	8	·57	2	D	8	·10	**46**	3	Jr	6○	·63		5	F	5	·16	6	Mr	6	·69
3	S	29	·40	4	O	28	·93	6	N	27	·47	1	D	27○	·00	**47**	2	Jr	25	·53		4	F	24	·06	5	Mr	25	59

(1) for Ārya siddhānta +·05; (2) for Brahma siddhānta −·10; and for Siddhānta Śiromaṇi −·03.

TABLE II.—

Kaliyuga.	Vikrama era.	Śaka era.	Commencement of solar year. Month and day A.D.	Fraction of day.	First new moon in solar year.	Anomaly of first new moon.	Christian era.	Vaiśākha. Week-day.	Month.	Day.	Fraction.	Jyeshṭha. Week-day.	Month.	Day.	Fraction.	Āshāḍha. Week-day.	Month.	Day.	Fraction.	Śrāvaṇa. Week-day.	Month.	Day.	Fraction.	Bhādrapada. Week-day.	Month	Day.	Fraction.
							A.D.																				
4801	1757	1622	28M	·8691	9·7848	19·623	**1700**	1	Ap	7	·65	3	My	7	·18	4	Je	5	·71	6	Jl	5	·24	7	Au	3○	·78
4802	1758	1623	29M	·1279	28·4237	17·756	**1701**	7	Ap	26	·55	2	My	26	·08	3	Je	24	·61	5	Jl	24●○	·14	6	Au	22	·67
4803	1759	1624	29M	·3868	17·5320	13·913	**1702**	4	Ap	15	·92	6	My	15	·45	7	Je	13	·98	2	Jl	13	·51	4	Au	12	·04
4804	1760	1625	29M	·6454	6·6403	10·071	**1703**	2	Ap	5	·28	3	My	4	·82	5	Je	3○	·35	6 Jl 1 Au		2 1	·88 ·41	2	Au	30	·94
4805	1761	1626	28M	·9041	25·2792	8·204	**1704**	1	Ap	23	·18	2	My	22○	·71	4	Je	21	·24	5	Jl	20	·77	7	Au	19	·31
4806	1762	1627	29M	·1629	14·3875	4·361	**1705**	5	Ap	12	·55	7	My	12	·08	1	Je	10	·61	3	Jl	10	·14	4	Au	8	·67
4807	1763	1628	29M	·4217	3·4958	0·518	**1706**	2	Ap	1○	·92	4 My 1● 5 My 30			·45 ·98	7	Je	29	·51	2	Jl	29	·04	3	Au	27	·57
4808	1764	1629	29M	·6804	22·1347	26·206	**1707**	1	Ap	29●	·81	3	My	20	·35	4	Je	18	·88	6	Jl	18	·41	7	Au	16	·94
4809	1765	1630	28M	·9392	11·2430	22·363	**1708**	6	Ap	9	·18	7	My	8	·71	2	Je	7	·24	3	Jl	6	·77	5	Au	5	·30
4810	1766	1631	29M	·1979	0·3513	18·521	**1709**	3 Mr 29 5 Ap 28			·55 ·08	6	My	27	·61	1	Je	26	·14	2	Jl	25	·67	4	Au	24●	·20
4811	1767	1632	29M	·4567	18·9903	16·654	**1710**	2	Ap	17	·45	3	My	16	·98	5	Je	15	·51	7	Jl	15○	·04	1	Au	13	·57
4812	1768	1633	29M	·7154	8·0984	12·811	**1711**	6	Ap	6	·81	1	My	6	·34	2	Je	4	·87	4	Jl	4○	·40	5 Au 7 S		2 1	·94 ·47
4813	1769	1634	28M	·9742	26·7373	10·944	**1712**	5	Ap	24	·71	7	My	24	·24	1	Je	22●○	·77	3	Jl	22	·30	4	Au	20	·83
4814	1770	1635	29M	·2329	15·8456	7·102	**1713**	3	Ap	14	·08	4	My	13○	·61	6	Je	12	·14	7	Jl	11	·67	2	Au	10	·20
4815	1771	1636	29M	·4917	4·9539	3·259	**1714**	7	Ap	3	·45	1	My	2○	·98	3 Je 5 Jl		1 1	·51 ·04	6	Jl	30	·57	1	Au	29	·10
4816	1772	1637	29M	·7505	23·5928	1·392	**1715**	6	Ap	22●○	·34	7	My	21	·87	2	Je	20	·40	3	Jl	19	·93	5	Au	18	·47
4817	1773	1638	29M	·0092	12·7011	25·104	**1716**	3	Ap	10●	·71	5	My	10	·24	6	Je	8	·77	1	Jl	8	·30	2	Au	6	·83
4818	1774	1639	29M	·2680	1·8094	21·281	**1717**	1	Mr	31	·08	2 Ap 29 4 My 29			·61 ·14	5	Je	27	·67	7	Jl	27	·20	1	Au	25○	·73
4819	1775	1640	29M	·5267	20·4483	19·395	**1718**	6	Ap	18	·97	1	My	18	·51	3	Je	17	·04	4	Jl	16	·57	6	Au	15○	·10
4820	1776	1641	29M	·7855	9·5566	15·552	**1719**	4	Ap	8	·34	5	My	7	·87	7	Je	6	·40	1	Jl	5	·93	3	Au	4○	·46
4821	1777	1642	29M	·0442	28·1955	13·685	**1720**	3	Ap	26	·24	4	My	25	·77	6	Je	24	·30	7	Jl	23●	·83	2	Au	22	·36
4822	1778	1643	29M	·3030	17·3028	9·842	**1721**	7	Ap	15	·61	2	My	15	·14	3	Je	13○	·67	5	Jl	13●	·20	6	Au	11	·73
4823	1779	1644	29M	·5618	6·4121	6·000	**1722**	4	Ap	4	·97	6	My	4	·50	1	Je	3○	·03	2 Jl 4 Au		2 1	·57 ·10	5	Au	30	·63
4824	1780	1645	29M	·8205	25·0510	4·133	**1723**	3	Ap	23	·87	5	My	23●	·40	6	Je	21	·93	1	Jl	21	·46	2	Au	19	·99
4825	1781	1646	29M	·0793	14·1593	0·290	**1724**	1	Ap	12○	·24	2	My	11	·77	4	Je	10	·30	5	Jl	9	·83	7	Au	8	·36
4826	1782	1647	29M	·3380	3·2676	24·002	**1725**	5	Ap	1○	·61	7 My 1 1 My 30			·14 ·67	3	Je	29	·20	4	Jl	28	·73	6	Au	27	·26
4827	1783	1648	29M	·5968	21·9085	22·135	**1726**	4	Ap	20	·50	6	My	20	·03	7	Je	18	·56	2	Jl	18	·09	3	Au	16	·63
4828	1784	1649	29M	·8555	11·0148	18·292	**1727**	1	Ap	9	·87	3	My	9	·40	4	Je	7	·93	6	Jl	7	·46	7	Au	5	·99
4829	1785	1650	29M	·1143	0·1231	14·450	**1728**	6 Mr 29 7 Ap 27			·24 ·77	2	My	27	30	3	Je	25	·83	5	Jl	25○	·36	6	Au	23●	·89
4830	1786	1651	29M	·3731	18·7619	12·583	**1729**	5	Ap	17	·13	6	My	16	·66	1	Je	15	·20	2	Jl	14○	·73	4	Au	13	·26
4831	1787	1652	29M	·6318	7·8702	8·743	**1730**	2	Ap	6	·50	4	My	6	·03	5	Je	4	·56	7	Jl	4●○	·09	1 Au 3 S		2 1	·62 ·15
4832	1788	1653	29M	·8906	26·5091	6·873	**1731**	1	Ap	25	·40	2	My	24○	·93	4	Je	23●	·46	5	Jl	22	·99	7	Au	21	·52
4833	1789	1654	29M	·1493	15·6174	3·031	**1732**	5	Ap	13	·77	7	My	13○	·30	1	Je	11	·83	3	Jl	11	·36	4	Au	9	·89
4834	1790	1655	29M	·4081	4·7257	26·742	**1733**	3	Ap	3	·13	4	My	2○	·66	6 Je 7 Je		1 30	·19 ·72	2	Jl	30	·26	3	Au	28	·79
4835	1791	1656	29M	·6668	23·3646	24·876	**1734**	2	Ap	22●	·03	3	My	21	·56	5	Je	20	·09	6	Jl	19	·62	1	Au	18	·15
4836	1792	1657	29M	·9256	12·4729	21·038	**1735**	6	Ap	11	·40	7	My	10	·93	2	Je	9	·46	3	Jl	8	·99	5	Au	7	·52
4837	1793	1658	29M	·1843	1·5812	17·190	**1736**	3 Mr 30			·76	5 Ap 29 6 My 28			·30 ·83	1	Je	27	·36	2	Jl	26	·89	4	Au	25○	·42
4838	1794	1659	29M	·4431	20·2201	15·323	**1737**	2	Ap	18	·66	4	My	18	·19	5	Je	16	·72	7	Jl	16	·25	1	Au	14●○	·78
4839	1795	1660	29M	·7019	9·3284	11·481	**1738**	7	Ap	8	·03	1	My	7	·56	3	Je	6	·09	4	Jl	5	·62	6	Au	4●	·15
4840	1796	1661	29M	·9606	27·9673	9·614	**1739**	5	Ap	26	·93	7	My	26	·46	1	Je	24○	·99	3	Jl	24	·52	5	Au	23	·05
4841	1797	1662	29M	·2194	17·0756	5·771	**1740**	3	Ap	16	·29	4	My	14	·82	6	Je	13○	·36	7	Jl	12	·89	2	Au	11	·42
4842	1798	1663	29M	·4781	6·1839	1·929	**1741**	7	Ap	4	·66	2	My	4	·19	3	Je	2●	·72	5 Jl 6 Jl		2 31	·25 ·78	1	Au	30	·31
4843	1799	1664	29M	·7369	24·8228	0·062	**1742**	6	Ap	23○	·56	1	My	23●	·09	2	Je	21	·62	4	Jl	21	·15	5	Au	19	·68
4844	1800	1665	29M	·9956	13·9311	23·774	**1743**	3	Ap	12○	·93	5	My	12	·46	6	Je	10	·99	1	Jl	10	·52	3	Au	9	·05
4845	1801	1666	29M	·2544	3·0394	19·931	**1744**	1	Ap	1○	·29	2	Ap	30	·82	4 My 30 5 Je 28			·35 ·88	7	Jl	28	·42	1	Au	26	·95
4846	1802	1667	29M	·5132	21·6783	18·064	**1745**	7	Ap	20	·19	1	My	19	·72	3	Je	18	·25	4	Jl	17	·78	6	Au	16	·31
4847	1803	1668	29M	·7719	10·7866	14·221	**1746**	4	Ap	9	·56	6	My	9	·09	7	Je	7	·62	2	Jl	7	·15	3	Au	5○	·68
4848	1804	1669	30M	·0307	29·4254	12·355	**1747**	3	Ap	28	·46	4	My	27	·99	6	Je	26	·52	1	Jl	26○	·05	2	Au	24●	·58
4849	1805	1670	29M	·2894	18·5337	8·512	**1748**	7	Ap	6	·82	2	My	16	·35	3	Je	14	·88	5	Jl	14●○	·41	6	Au	12	·94
4850	1806	1671	29M	·5482	7·6420	4·669	**1749**	5	Ap	6	·19	6	My	5	·72	1	Je	4○	·25	2	Jl	3	·78	4 Au 5 Au		2 31	·31 ·84
4851	1807	1672	29M	·8069	26·2809	2·802	**1750**	4	Ap	25	·09	5	My	24○	·62	7	Je	23	·15	1	Jl	22	·68	3	Au	21	·21
4852	1808	1673	30M	·0657	15·3892	26·514	**1751**	1	Ap	14	·45	2	My	13●○	·98	4	Je	12	·52	6	Jl	12	·05	7	Au	10	·58

N.B.—For tithis by other siddhāntas add to the above algebraically as follows:—

Sūrya siddhānta—*cont.*

Āśvina.				Kārttika.				Mārgaśīrsha.				Pausha.				A.D.	Māgha.			A.D.	Phālguna.			Chaitra.			
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
2	8	2	·31																								
3	0	1	·84	5	0	31	·37	6	N	29	·90	1	D	29	·43	**01**	2	Jr	27○	·96	4	F	26	·49	6	Mr	28	·02
1	S	21	·20	2	0	20	·73	4	N	19	·26	5	D	18	·80	**02**	7	Jr	17●	·33	1	F	15	·86	3	Mr	17	·39
5	S	10	·57	7	0	10	·10	1	N	8	·63	3	D	8○	·16	**03**	4	Jr	6●	·69	6	F	5	·22	7	Mr	6	·75
4	S	29	·47	6	0	29	·00	7	N	27○	·53	2	D	27	·06	**04**	3	Jr	25	·59	5	F	24	·12	6	Mr	24	·65
1	S	17	·84	3	0	17	·37	4	N	15●○	·90	6	D	15	·43	**05**	7	Jr	13	·96	2	F	12	·49	4	Mr	14	·02
6	S	7	·20	7	0	6	·73	2	N	5	·26	3	D	4	·79	**06**	5	Jr	3	·32	6	F	1	·86	1	Mr	3	·39
5	S	26○	·10	6	0	25	·63	1	N	24	·16	2	D	23	·69	**07**	4	Jr	22	·22	5	F	20	·75	7	Mr	22○	·28
2	S	15○	·47	4	0	15	·00	5	N	13	·53	7	D	13	·06	**08**	1	Jr	11	·59	3	F	10	·12	4	Mr	10●○	·65
6	S	3●○	·83	1	0	3	·36	2	N	1	·90	4	D	1	·43		5	D	30	·96	**09**	7	Jr	29	·49	2	F	28●	·02
5	S	22	·73	7	0	22	·26	1	N	20	·79	3	D	20	·32	**10**	4	Jr	18○	·85		6	F	17	·39	7	Mr	18	·92
3	S	12	·10	4	0	11	·63	6	N	10	·16	7	D	9	·69	**11**	2	Jr	8○	·22		3	F	6	·75	5	Mr	8	·28
2	0	1	·00	3	0	30	·53	5	N	29	·06	6	D	28●○	·59	**12**	1	Jr	27	·12		2	F	25	·65	4	Mr	26	·18
6	S	19	·36	7	0	18	·89	2	N	17	·43	3	D	16●	·96	**13**	5	Jr	15	·49		7	F	14	·02	1	Mr	15	·55
3	S	8	·73	5	0	8	·26	6	N	6○	·79	1	D	6	·32	**14**	2	Jr	4	·85		4	F	3	·38	5	Mr	4	·91
2	S	27	·63	4	0	27○	·16	5	N	25	·69	7	D	25	·22	**15**	1	Jr	23	·75		3	F	22	·28	4	Mr	23	·81
7	S	17	·00	1	0	16○	·53	3	N	15	·06	4	D	14	·59	**16**	6	Jr	13	·12		7	F	11	·65	2	Mr	12	·18
4	S	5	·36	5	0	4●	·89	7	N	3	·42	1	D	2	·95	**17**	3	Jr	1	·49		5	Jr	31	·02	6	Mr	1○	·55
3	S	24	·26	4	0	23	·79	6	N	22	·32	7	D	21	·85	**18**	2	Jr	20	·38		3	F	18○	·91	5	Mr	20	·44
7	S	13●	·63	2	0	13	·16	3	N	11	·69	5	D	11	·22	**19**	6	Jr	9	·75		1	F	8●○	·28	2	Mr	9	·81
4	S	2	·99																									
6	0	2	·53	1	N	1	·06	2	N	30	·59	4	D	30	·12	**20**	5	Jr	28●	·65		7	F	27	·18	1	Mr	27	·71
3	S	20	·89	5	0	20	·42	6	N	18	·95	1	D	18○	·48	**21**	3	Jr	17	·01		4	F	15	·55	6	Mr	17	·08
1	S	10	·26	2	0	9	·79	4	N	8	·32	5	D	7○	·85	**22**	7	Jr	6	·38		1	F	4	·91	3	Mr	6	·44
7	S	29	·16	1	0	28	·69	3	N	27○	·22	4	D	26	·75	**23**	6	Jr	25	·28		7	F	23	·81	2	Mr	25	·34
4	S	18	·52	6	0	18	·05	7	N	16	·59	2	D	16	·12	**24**	3	Jr	14	·65		5	F	13	·18	6	Mr	13	·71
1	S	6	·89	3	0	6○	·42	4	N	4	·95	6	D	4	·48	**25**	1	Jr	3	·01		2	F	1	·54	4	Mr	3	·07
7	S	25○	·79	2	0	25	·32	3	N	23	·85	5	D	23	·38	**26**	6	Jr	21	·91		1	F	20	·44	2	Mr	21○	·97
5	S	15○	·16	6	0	14	·69	1	N	13	·22	2	D	12	·75	**27**	4	Jr	11	·28		5	F	9	·81	7	Mr	11	·34
2	S	4●	·52	4	0	4	·05	5	N	2	·58	7	D	2	·11		1	D	31	·64	**28**	3	Jr	30○	·18	4	F	28	·71
1	S	22	·42	2	0	21	·95	4	N	20	·48	6	D	20	·01	**29**	7	Jr	18○	·54		2	F	17	·07	3	Mr	18	·60
5	S	11	·79	7	0	11	·32	1	N	9	·85	3	D	9	·38	**30**	4	Jr	7○	·91		6	F	6	·44	7	Mr	7	·97
4	S	30	·68	6	0	30	·22	7	N	28	·75	2	D	28●	·28	**31**	3	Jr	26	·81		5	F	25	·34	6	Mr	26	·87
2	S	20	·05	3	0	19	·58	5	N	18○	·11	6	D	17●	·64	**32**	1	Jr	16	·17		2	F	14	·70	4	Mr	15	·24
6	S	8	·42	7	0	7	·95	2	N	6○	·48	4	D	6	·01	**33**	5	Jr	4	·54		7	F	3	·07	1	Mr	4	·60
5	S	27	·32	6	0	26○	·85	1	N	25	·38	2	D	24	·91	**34**	4	Jr	23	·44		5	F	21	·97	7	Mr	23	·50
2	S	16	·68	4	0	16	·21	5	N	14	·74	7	D	14	·28	**35**	1	Jr	12	·81		3	F	11	·34	4	Mr	12○	·87
7	S	6○	·05	1	0	5●	·58	3	N	4	·11	4	D	3	·64	**36**	6	Jr	2	·17		7	Jr	31	·70	2	Mr	1○	·23
5	S	23	·95	7	0	23	·48	2	N	22	·01	3	D	21	·54	**37**	5	Jr	20	·07		6	F	18○	·60	1	Mr	20	·13
3	S	13	·32	4	0	12	·85	6	N	11	·38	7	D	10	·91	**38**	2	Jr	9	·44		3	F	7	·97	5	Mr	9	·50
7	S	2	·68																									
2	0	2	·21	3	0	31	·74	5	N	30	·27	6	D	29○	·80	**39**	1	Jr	28	·34		2	F	26	·87	4	Mr	28	·40
6	S	21	·58	1	0	21	·11	2	N	19	·64	4	D	19●○	·17	**40**	5	Jr	17	·70		7	F	16	·23	1	Mr	16	·76
3	S	9	·95	5	0	9	·48	7	N	8	·01	1	D	7○	·54	**41**	3	Jr	6	·07		4	F	4	·60	6	Mr	6	·13
2	S	28	·84	4	0	28	·38	5	N	26●	·91	7	D	26	·44	**42**	1	Jr	24	·97		3	F	23	·50	5	Mr	25	·03
7	S	18	·21	1	0	17○	·74	3	N	16	·27	4	D	15	·80	**43**	6	Jr	14	·33		7	F	12	·86	2	Mr	14	·40
4	S	7	·58	6	0	7○	·11	7	N	5	·64	2	D	5	·17	**44**	3	Jr	3	·70		5	F	2	·23	6	Mr	2	·76
3	S	25●○	·48	5	0	25	·01	6	N	23	·54	1	D	23	·07	**45**	2	Jr	21	·60		4	F	20	·13	5	Mr	21●	·66
7	S	14	·84	2	0	14	·37	3	N	12	·91	5	D	12	·44	**46**	6	Jr	10	·97		1	F	9○	·50	3	Mr	11●	·03
5	S	4	·21	6	0	3	·74	1	N	2	·27	2	D	1	·80		4	D	31	·33	**47**	5	Jr	29○	·86	7	F	28	·39
4	S	23	·11	5	0	22	·64	7	N	21	·17	1	D	20	·70	**48**	3	Jr	19○	·23						1	Mr	29	·92
1	S	11	·48	3	0	11	·01	4	N	9	·54	6	D	9	·07	**49**	7	Jr	7	·60		4	F	17	·76	6	Mr	18	·29
7	S	30	·37	1	0	29	·90	3	N	28○	·43	4	D	27●	·96	**50**	6	Jr	26	·50		2	F	6	·13	3	Mr	7	·66
4	S	19	·74	6	0	19	·27	7	N	17○	·80	2	D	17	·33	**51**	3	Jr	15	·86		1	F	25	·03	2	Mr	26	·56
2	S	9	·11	3	0	8	·64	5	N	7○	·17	6	D	6	·70	**52**	1	Jr	5	·23		5	F	14	·39	6	Mr	15	·92
																						2	F	3	·76	4	Mr	4	·29

(1) for Ārya siddhānta + ·05; (2) for Brahma siddhānta — ·10; and (3) for Siddhānta Siromaṇi — ·03.

TABLE II.—

Kaliyuga.	Vikrama era.	Śaka era.	Commencement of solar year. Month and day A.D.	Commencement of solar year. Fraction of day.	First new moon in solar year.	Anomaly of first new moon.	Christian era.	Vaiśākha. Week-day.	Vaiśākha. Month.	Vaiśākha. Day.	Vaiśākha. Fraction.	Jyeshṭha. Week-day.	Jyeshṭha. Month.	Jyeshṭha. Day.	Jyeshṭha. Fraction.	Āshāḍha. Week-day.	Āshāḍha. Month.	Āshāḍha. Day.	Āshāḍha. Fraction.	Śrāvana. Week-day.	Śrāvana. Month.	Śrāvana. Day.	Śrāvana. Fraction.	Bhāḍrapada. Week-day.	Bhāḍrapada. Month.	Bhāḍrapada. Day.	Bhāḍrapada. Fraction.
							A.D.																				
4853	1809	1674	29M	·3244	4·4975	22·671	**1752**	5	Ap	2	·82	7	My	2	·35	1 3	My Je	31 30	·88 ·41	4	Jl	29	·94	6	Au	28	·47
4854	1810	1675	9A	·5832	23·1364	20·805	**1753**	4	My	2●	·72	6	Je	1	·25	7	Je	30	·78	2	Jl	30	·31	3	Au	28	·84
4855	1811	1676	9A	·8420	12·2447	16·962	**1754**	2	Ap	22	·09	3	My	21	·62	5	Je	20	·15	6	Jl	19	·68	1	Au	18	·21
4856	1812	1677	10A	·1007	1·3530	13·119	**1755**	6	Ap	11	·45	7 2	My Je	10 9	·98 ·51	4	Jl	9	·04	5	Au	7	·58	7	S	6●○	11
4857	1813	1678	9A	·3595	19·9919	11·252	**1756**	5	Ap	29	·35	6	My	28	·88	4	Je	27	·41	2	Jl	26	·94	4	Au	25	·47
4858	1814	1679	9A	·6182	9·1002	7·410	**1757**	2	Ap	18	·72	4	My	18	·25	5	Je	16	·78	7	Jl	16○	·31	1	Au	14	·84
4859	1815	1680	9A	·8770	27·7391	5·543	**1758**	1	My	7	·62	3	Je	6	·15	4	Jl	5○	·68	6	Au	4	·21	7	S	2	·74
4860	1816	1681	10A	·1357	16·8474	1·700	**1759**	5	Ap	26	·98	7	My	26	·51	2	Je	25	·04	3	Jl	24	·57	5	Au	23	·10
4861	1817	1682	9A	·3945	5·9557	25·412	**1760**	3	Ap	15	·35	4	My	14○	·88	6	Je	13●	·41	7 2	Jl Au	12 11	·94 ·47	4	S	10	·00
4862	1818	1683	9A	·6533	24·5946	2·545	**1761**	2	My	4○	·25	3	Je	2●	·78	5	Jl	2	·31	6	Jl	31	·84	1	Au	30	·37
4863	1819	1684	9A	·9120	13·7629	19·703	**1762**	6	Ap	23●○	·61	1	My	23	·14	2	Je	21	·68	4	Jl	21	·21	5	Au	19	·74
4864	1820	1685	10A	·1708	2·8112	15·860	**1763**	3	Ap	12●	·98	5 7	My Je	12 11	·51 ·04	1	Jl	10	·57	3	Au	9	·10	4	S	7	·63
4865	1821	1686	9A	·4295	21·4500	13·993	**1764**	2	Ap	30	·88	4	My	30	·41	5	Je	28	·94	7	Jl	28	·47	2	Au	27○	·00
4866	1822	1687	9A	·6883	10·5583	10·150	**1765**	7	Ap	20	·25	1	My	19	·78	3	Je	18	·31	4	Jl	17	·84	6	Au	16○	·37
4867	1823	1688	9A	·9170	29·1972	8·284	**1766**	6	My	9	·14	7	Je	7	·67	2	Jl	7	·20	3	Au	5○	·74	5	S	4	·27
4868	1824	1689	10A	·2058	18·3055	4·441	**1767**	3	Ap	28	·51	5	My	28	·04	6	Je	26	·57	1	Jl	26	·10	2	Au	24	·63
4869	1825	1690	9A	·4646	7·4138	0·598	**1768**	7	Ap	16	·88	2	My	16	·41	3	Je	14○	·94	5 7	Jl Au	14● 13	·47 ·00	1	S	11	·53
4870	1826	1691	9A	·7233	26·0527	26·286	**1769**	6	My	5	·78	1	Je	4●○	·31	2	Jl	3	·84	4	Au	2	·37	5	Au	31	·90
4871	1827	1692	9A	·9821	15·1610	22·443	**1770**	4	Ap	25	·14	5	My	24●	·67	7	Je	23	·20	1	Jl	22	·73	3	Au	21	·26
4872	1828	1693	10A	·2405	4·2693	18·600	**1771**	1	Ap	14○	·51	3	My	14	·04	4 6	Je Jl	12 12	·57 ·10	7	Au	10	·63	2	S	9	·16
4873	1829	1694	9A	·4996	22·9082	16·734	**1772**	7	My	3	·41	1	My	31	·94	3	Je	30	·47	5	Jl	30	·00	6	Au	28	·53
4874	1830	1695	9A	·7583	12·0165	12·891	**1773**	4	Ap	21	·77	6	My	21	·30	7	Je	19	·84	2	Jl	19	·37	3	Au	17	·90
4875	1831	1696	10A	·0171	1·1248	9·048	**1774**	2 3	Ap My	11 10	·14 ·67	5	Je	9	·20	6	Jl	8	·73	1	Au	7	·26	2	S	5●	·79
4876	1832	1697	10A	·2758	19·7637	7·181	**1775**	1	Ap	30	·04	2	My	29	·57	4	Je	28	·10	5	Jl	27○	·63	7	Au	26●	·16
4877	1833	1698	9A	·5346	8·8720	3·339	**1776**	5	Ap	18	·41	6	My	17	·94	1	Je	16	·47	3	Jl	16○	·00	4 6	Au S	14 13	·53 ·06
4878	1834	1699	9A	·7934	27·5109	1·472	**1777**	4	My	7	·30	5	Je	5	·83	7	Jl	5●○	·36	1	Au	3	·90	3	S	2	·43
4879	1835	1700	10A	·0521	16·6182	25·184	**1778**	1	Ap	26	·67	3	My	26	·20	4	Je	24	·73	6	Jl	24	·26	7	Au	22	·79
4880	1836	1701	10A	·3109	5·7275	21·341	**1779**	6	Ap	16	·04	7	My	15○	·57	2	Je	14	·10	3 5	Jl Au	13 12	·63 ·16	6	S	10	·69
4881	1837	1702	9A	·5696	24·3664	19·474	**1780**	4	My	3○	·94	6	Je	2	·47	1	Jl	2	·00	2	Jl	31	·53	4	Au	30	·06
4882	1838	1703	9A	·8284	13·4747	15·632	**1781**	2	Ap	23	·30	3	My	22	·83	5	Je	21	·36	6	Jl	20	·89	1	Au	19	·42
4883	1839	1704	10A	·0871	2·5830	11·789	**1782**	6	Ap	12	·67	1 2	My Je	12 10	·20 ·73	4	Jl	10	·26	5	Au	8	·79	7	S	7○	·32
4884	1840	1705	10A	·3459	21·2218	9·922	**1783**	5	My	1	·57	7	My	31	·10	1	Je	29	·63	3	Jl	29	·16	4	Au	27○	·69
4885	1841	1706	9A	·6047	10·3301	6·079	**1784**	2	Ap	19	·93	4	My	19	·46	6	Je	18	·00	7	Jl	17	·53	2	Au	16●○	06
4886	1842	1707	9A	·8834	28·9690	4·213	**1785**	1	My	8	·83	3	Je	7	·36	4	Jl	6	·89	6	Au	5●	·42	7	S	3	·95
4887	1843	1708	10A	·1222	18·0773	0·370	**1786**	6	Ap	28	·20	7	My	27	·73	2	Je	26○	·26	3	Jl	25	·79	5	Au	24	·32
4888	1844	1709	10A	·3809	7·1856	24·082	**1787**	3	Ap	17	·57	5	My	17	·10	6	Jl	15○	·63	1 2	Au Au	15 13	·16 ·69	4	S	12	·22
4889	1845	1710	9A	·6397	25·8245	22·215	**1788**	2	My	5	·46	3	Je	3●	·99	5	Jl	3	·52	7	Au	2	·06	1	Au	31	·59
4890	1846	1711	9A	·8984	14·9328	18·372	**1789**	6	Ap	24○	·83	1	My	24	·36	2	Je	22	·89	4	Jl	22	·42	5	Au	20	·95
4891	1847	1712	10A	·1572	4·0411	14·529	**1790**	4	Ap	14○	·20	5	My	13	·73	7 1	Je Jl	12 11	·26 ·79	3	Au	10	·32	4	S	8	·85
4892	1848	1713	10A	·4160	22·6800	2·663	**1791**	3	My	3	·10	4	Je	1	·63	6	Jl	1	·16	7	Jl	30	·69	2	Au	29	·22
4893	1849	1714	9A	·6747	11·7883	8·820	**1792**		Ap	21	·46	1	My	20	·99	3	Je	19	·52	5	Jl	19	·05	6	Au	17	·58
4894	1850	1715	9A	·9335	0·8966	4·977	**1793**	4 6	Ap My	10 10	·83 ·36	7	Je	8	·89	2	Jl	8	·42	3	Au	6○	·95	5	S	5●	·48
4895	1851	1716	10A	·1922	19·5355	3·110	**1794**	3	Ap	29	·73	5	My	29	·26	6	Je	27	·79	1	Jl	27○	·32	2	Au	25●	·85
4896	1852	1717	10A	·4510	8·3438	26·822	**1795**	1	Ap	19	·09	2	My	18	·62	4	Je	17	·16	5	Jl	16●○	·69	7 1	Au S	15 13	·22 ·75
4897	1853	1718	9A	·7097	27·2927	24·955	**1796**	6	My	6	·99	1	Je	5	·52	3	Jl	5●	·05	4	Au	3	·58	6	S	2	·11
4898	1854	1719	9A	·9685	16·3910	21·143	**1797**	4	Ap	26	·36	5	M	25○	·89	7	Je	24	·42	1	Jl	23	·95	3	Au	22	·48
4899	1855	1720	10A	·2272	5·4993	17·270	**1798**	1	Ap	15	·78	3	My	15○	·26	4	Je	13	·79	6 7	Jl Au	13 11	·32 ·85	2	S	10	·38
4900	1856	1721	10A	·4860	24·1382	15·403	**1799**	7	My	4●	·62	2	Je	3	·15	3	Jl	2	·68	5	Au	1	·22	6	Au	30	·75
4901	1857	1722	10A	·7448	13·2464	11·563	**1800**	4	Ap	23●	·99	6	My	23	·52	1	Je	22	·05	2	Jl	21	·58	4	Au	20	·11
4902	1858	1723	11A	·0035	2·3548	7·720	**1801**	2	Ap	13●	·36	3 5	My Je	12 11	·89 ·42	6	Jl	10	·95	1	Au	9	·48	3	S	8○	·01
4903	1859	1724	11A	·2623	20·9936	5·854	**1802**	1	My	2	·26	2	My	21	·79	4	Je	20	·32	5	Jl	29	·85	7	Au	28●○	·38
4904	1860	1725	11A	·5210	10·1019	2·011	**1803**	5	Ap	21	·62	7	My	21	·15	1	Je	19	·68	3	Jl	19	·21	4	Au	17●	·74
4905	1861	1726	10A	·7798	28·7408	0·144	**1804**	4	My	9	·52	6	Je	8	·05	7	Jl	7○	·58	2	Au	6	·11	3	S	4	·64

N.B.—For tithis by other siddhāntas add to the above algebraically as follows:—(1) for Ārya siddhānta +·05; (2) for Brahma siddhānta —·10; and (3) for Siddhānta Śirōmaṇi —·04.

Sūrya siddhānta—*cont.*

Āśvina.				Kārttika.				Mārgaśīrsha.			A.D.	Pausha.			A.D.	Māgha.				Phālguna.				Chaitra.		
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.		Week-day.	Month.	Day.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
1	O*	8	·00	2	N	6●	·54	4	D	6	·07	**53**	5	Jr	4	·60				7	F	3	·13	1	Mr	4	·68	3	Ap	3○	·19
5	S	27○	·37	6	O	26●	·90	1	N	25	·43		2	D	24	·96	**54**	4	Jr	23	·49	6	F	22	·02	7	Mr	23○	·56
2	S	16○	·74	4	O	16	·27	5	N	14	·80		7	D	14	·33	**55**	1	Jr	12	·86	3	F	11	·39	4	Mr	12○	·92
1	O	5	·64	3	N	4	·17	4	D	3	·70	**56**	6	Jr	2	·23				7	Jr	31	·76	2	Mr	1●	·29	3	Mr	30	·82
6	S	24	·00	7	O	23	·53	2	N	22	·06		3	D	21	·60	**57**	5	Jr	20○	·13	6	F	18	·66	1	Mr	20	·19
3	S	13	·37	6	N	11	·43	7	D	10	·96	**58**	2	Jr	9○	·49													
4	O	12	·90															4	F	8	·02	5	Mr	9	·55	7	Ap	8	·08
2	O	2	·27	3	O	31	·80	5	N	30	·33		6	D	29●○	·86	**59**	1	Jr	28	·39	2	F	26	·92	4	Mr	28	·45
6	S	21	·64	1	O	21	·17	2	N	19	·70		4	D	19	·23	**60**	5	Jr	17	·76	7	F	16	·29	1	Mr	16	·82
5	O	9	·53	7	N	8○	·06	1	D	7	·59	**61**	3	Jr	6	·12													
2	S	28	·90	4	O	28○	·43	5	N	26	·96		7	D	26	·49	**62**	2	Jr	25	·02	3	F	23	·55	5	Mr	25	·08
7	S	18	·27	1	O	17●○	80	3	N	16	·33		4	D	15	·88	**63**	6	Jr	14	·39	7	F	12	·92	2	Mr	14	·45
6	O	7●	·16	7	N	5	·70	2	D	5	·23	**64**	3	Jr	3	·76													
3	S	25	·53	5	O	25	·06	6	N	23	·59		1	D	23	·12				5	F	2	·29	6	Mr	2○	·82	1	Ap	1●	·35
7	S	14	·90	2	O	14	·43	3	N	12	·96		5	D	12	·49	**65**	2	Jr	21	·65	4	F	20○	·18	5	Mr	21	·72
6	O	3	·80	1	N	2	·33	2	D	1	·86		4	D	31	·39	**66**	7	Jr	11	·02	1	F	9●○	·55	3	Mr	11	·08
4	S	23	·16	5	O	22	·69	7	N	21	·22		1	D	20○	·76										4	Ap	9	·61
3	O	11	·06	4	N	9	·59	6	D	9○	·12	**61**	7	Jr	7●	·65	**67**	5	Jr	2●	·92	7	F	23	·45	1	Mr	29	·98
7	S	30	·43	1	O	29	·96	3	N	28○	·49		5	D	28	·02	**68**	3	Jr	19	·29	4	F	17	·82	6	Mr	18	·35
4	S	19	·80	6	O	19	·33	7	N	17●	·86		2	D	17	·39													
3	O	8○	·69	5	N	7	·22	6	D	6	·75	**72**	1	Jr	5	·28		2	F	6	·18	3	Mr	17	·71	5	Ap	6	·24
1	S	27○	·06	2	O	26●	·59	4	N	25	·12		5	D	24	·65	**70**	6	Jr	26	·55	1	F	25	·08	2	Mr	26	·61
5	S	10○	·43	6	O	15	·96	1	N	14	·49		3	D	14	·02	**71**	3	Jr	15	·92	5	F	14	·45	6	Mr	15	·98
4	O	5	·32	5	N	3	·86	7	D	3	·39	**75**	1	Jr	1	·92													
1	S	24	·69	3	O	24	·22	4	N	22	·75		6	D	22	·28		2	F	3	·82	4	Mr	4	·35	5	Ap	2○	·88
7	O	12	·59	2	N	11	·12	3	D	10	·65	**77**	5	Jr	9○	·18													
4	O	1	·96	6	O	31	·49	1	N	30	·02		2	D	29	·55	**73**	7	Jr	23	·18	1	F	21	·71	3	Mr	23●○	24
2	S	21	·32	3	O	20	·85	5	N	19○	·38		6	D	18	·92	**74**	4	Jr	12	·55	6	F	11	·08	7	Mr	12●	·61
1	O	10	·22	2	N	80	·75	4	D	8	·28	**80**	5	Jr	6	·81													
5	S	28	·59	7	O	28○	·12	1	N	26	·65		3	D	26	·18		3	Jr	31○	·45	4	Mr	1	·98	6	Mr	31	·51
2	S	17	·96	4	O	17●	·49	6	N	16	·02		7	D	15	·55	**76**	7	Jr	20●○	81	2	F	19	·34	3	Mr	19	·88
1	O	6●	·85	3	N	5	·38	4	D	4	·91	**83**	6	Jr	3	·44													
6	S	26	·22	7	O	25	·75	2	N	24	·28		3	D	23	·81		6	F	7	·71	1	Mr	9	·24	2	Ap	7	·77
8	S	14	·59	5	O	14	·12	6	N	12	·65		1	D	12	·18	**78**	4	Jr	28	·08	5	F	26	·61	7	Mr	28	·14
2	O	3	·48	4	N	2	·02	5	D	1	·55		7	D	31○	·08	**79**	1	Jr	17	·45	2	F	15	·98	4	Mr	17	·51
6	S	22	·85	1	O	22	·38	2	N	20	·91		4	D	20○	·44													
5	O	11	·75	7	N	10	·28	1	D	9○	·81	**88**	3	Jr	8	·34		7	F	5	·34	1	Mr	5	·87	3	Ap	4	·40
3	S	30	·12	4	O	29	·65	6	N	28	·18		7	D	27	·71	**81**	4	Jr	24	·71	6	F	23	·24	7	Mr	24	·77
7	S	19	·48	2	O	19○	·01	3	N	17●	·54		5	D	17	·08	**82**	2	Jr	14	·08	3	F	12	·61	5	Mr	14○	·14
6	O	8○	·38	7	N	6	·91	2	D	6	·44	**91**	3	Jr	4	·97													
3	S	27●○	75	5	O	27	·28	6	N	25	·81		1	D	25	·34		7	F	1	·98	2	Mr	3○	·51	4	Ap	2	·04
1	S	16●	·12	2	O	15	·65	4	N	14	·18		5	D	13	·71	**84**	5	Jr	22	·34	6	F	20○	·87	1	Mr	21	·40
7	O	5	·01	1	N	3	·54	3	D	3	·07	**94**	4	Jr	1	·60													
4	S	24	·38	5	O	23	·91	7	N	22	·44		1	D	21	·97	**85**	2	Jr	10	·71	4	F	9●	·24	5	Mr	10	·77
3	O	13	·28	4	N	11	·81	6	D	11	·34	**96**	7	Jr	9●	·87										7	Ap	9	·30
7	O	1	·64	2	O	31	·18	3	N	29○	·71		5	D	29	·24	**86**	1	Jr	29●	·61	3	F	28	·14	4	Mr	29	·67
5	S	21	·01	6	O	20	·54	1	N	19○	·07		2	D	18	·60	**87**	5	Jr	18	·97	7	F	17	·50	2	Mr	19	·04
3	O	9	·91	5	N	8●○	44	6	D	7	·97	**99**	1	Jr	6	·50													
1	S	29	·28	2	O	28	·81	4	N	27	·34	**18**	5	D	26	·87		4	F	6	·87	6	Mr	7	·40	7	Ap	5	·93
5	S	18○	·64	7	O	18	·17	1	N	16	·70		3	D	16	·24	**89**	2	Jr	26	·24	3	F	24	·77	5	Mr	26	·30
4	O	7	·54	6	N	6	·07	7	D	5	·60	**02**	2	Jr	4	·13	**90**	6	Jr	15	·61	1	F	14	·14	2	Mr	15	·67
1	S	26	·91	3	O	26	·44	4	N	24	·97		6	D	24	·50													
6	S	16	·28	7	O	15	·81	2	N	14	·34		3	D	13	·87		5	F	3	·50	7	Mr	5	·03	1	Ap	3●○	56
5	O	4	·17	6	N	2	·70	1	D	2	·23		2	D	31○	·76	**92**	2	Jr	23	·87	4	F	22	·40	5	Mr	22	·93
																	93	7	Jr	12	·24	1	F	10○	·77	3	Mr	12●	·30
																		6	Jr	31○	·14	7	Mr	1	·67	2	Mr	31	·20
																	95	3	Jr	20●○	50	5	F	19	·03	6	Mr	20	·56
																		2	F	8	·40	3	Mr	8	·93	5	Ap	7	·46
																	97	6	Jr	27	·77	1	F	26	·30	2	Mr	27	·83
																	98	4	Jr	17	·13	5	F	15	·66	7	Mr	17	·20
																		5	F	5	·03	4	Mr	6	·56	6	Ap	5	·09
																	00	7	Jr	25	·40	1	F	23	·93	3	Mr	25○	·46
																	01	4	Jr	14	·77	6	F	13	·30	7	Mr	14○	·83
																		3	F	2	·66	5	Mr	4○	·19	6	Ap	2	·72
																	03	1	Jr	23	·03	2	F	21	·56	4	Mr	23	·09
																	04	5	Jr	12○	·40	6	F	10●	·93	1	Mr	11	·46
																										2	Ap	9	·99
																	05	4	Jr	30	·30	5	F	28	·83	7	Mr	30	·36

*In this year **A.D. 1752**, the **New Style** was introduced by an Act of the British Parliament and 11 days were dropped out, that is, the next day after Wednesday, **2** September **1752** was declared to be Thursday, **14** September **1752**. Hence the new moon after **28** August **1752** which ordinarily would have occurred on **26** September **1752** actually occurred on **8** October **1752**.

TABLE II—

Kaliyuga.	Vikrama era.	Śaka era.	Commencement of sidereal year. Month and day A.D.	Commencement of sidereal year. Fraction of day.	First new-moon in solar year.	Anomaly of first new-moon.	Christian era.	Vaiśākha. Week-day.	Vaiśākha. Month.	Vaiśākha. Day.	Vaiśākha. Fraction.	Jyeshṭha. Week-day.	Jyeshṭha. Month.	Jyeshṭha. Day.	Jyeshṭha. Fraction.	Āshāḍha. Week-day.	Āshāḍha. Month.	Āshāḍha. Day.	Āshāḍha. Fraction.	Śrāvaṇa. Week-day.	Śrāvaṇa. Month.	Śrāvaṇa. Day.	Śrāvaṇa. Fraction.	Bhādrapada. Week-day.	Bhādrapada. Month.	Bhādrapada. Day.	Bhādrapada. Fraction.
4906	1862	1727	11A	·0385	17·8491	23·856	A.D. 1805	1	Ap	28	·89	3	My	28	·42	4	Je	26●○	·95	6	Jl	26	·48	1	Au	25	·01
4907	1863	1728	11A	·2973	6·9574	20·013	1806	6	Ap	18	·25	7	My	17	·78	2	Je	16	·32	3 Jl 15 / 5 Au 14			·85 / ·38	6	S	12	·91
4908	1864	1729	11A	·5561	25·5963	18·147	1807	5	My	7○	·15	6	Je	5●	·68	1	Jl	5	·21	2	Au	3	·74	4	S	2	·27
4909	1865	1730	10A	·8148	14·7046	14·304	1808	2	Ap	25○	·52	4	My	25	·05	5	Je	23	·58	7	Jl	23	·11	1	Au	21	·64
4910	1866	1731	11A	·0736	3·8129	10·461	1809	6	Ap	14○	·89	1	My	14	·42	2 Je 12 / 4 Jl 12			·95 / ·48	6	Au	11	·01	7	S	9	·54
4911	1867	1732	11A	·3323	22·4518	8·594	1810	5	My	3	·78	7	Je	2	·31	1	Jl	1	·84	3	Jl	31	·37	4	Au	29	·91
4912	1868	1733	11A	·5911	11·5601	4·752	1811	3	Ap	23	·15	4	My	22	·68	6	Je	21	·21	7	Jl	20	·74	2	Au	19○	·27
4913	1869	1734	10A	·8498	0·6684	0·909	1812	7 Ap 11 / 2 My 11			·52 / ·05	3	Je	9	·58	5	Jl	9	·11	6	Au	7○	·64	1	S	6	·17
4914	1870	1735	11A	·1086	19·3073	26·597	1813	6	Ap	30	·42	7	My	29	·95	2	Je	28	·48	4	Jl	28○	·00	5	Au	26	·54
4915	1871	1736	11A	·3674	8·4156	22·754	1814	3	Ap	19	·78	5	My	19	·31	6	Je	17	·84	1	Jl	17●	37	2 Au 15 / 4 S 14			·90 / ·44
4916	1872	1737	11A	·6261	27·0545	20·887	1815	2	My	8	·68	4	Je	7○	·21	5	Jl	6●	·74	7	Au	5	·27	1	S	3	·80
4917	1873	1738	10A	·8849	16·1628	17·044	1816	7	Ap	27	·05	1	My	26○	·58	3	Je	25	·11	4	Jl	24	·64	6	Au	23	·17
4918	1874	1739	11A	·1436	5·2711	13·203	1817	4	Ap	16	·41	5	My	15●	·94	7	Je	14	·48	2 Jl 14 / 3 Au 12			·01 / ·54	5	S	11	·07
4919	1875	1740	11A	·4024	23·9099	11·335	1818	3	My	5●	·31	4	Je	3	·84	6	Jl	3	·37	7	Au	1	·90	2	Au	31	·43
4920	1876	1741	11A	·6611	13·0182	7·492	1819	7	Ap	24	·68	2	My	24	·21	3	Je	22	·74	5	Jl	22	·27	6	Au	20	·80
4921	1877	1742	10A	·9199	2·1265	3·649	1820	5	Ap	13	·05	6 My 12 / 1 Je 11			·58 / ·11	2	Jl	10	·64	4	Au	9	·17	5	S	7○	·70
4922	1878	1743	11A	·1787	20·7654	1·783	1821	3	My	1	·94	5	My	31	·47	7	Je	30	·00	1	Jl	29	·54	3	Au	28	·07
4923	1879	1744	11A	·4374	9·8737	25·495	1822	1	Ap	21	·31	2	My	20	·84	4	Je	19	·37	5	Jl	18○	·90	7	Au	17	·43
4924	1880	1745	11A	·6962	28·5126	23·628	1823	7	My	10	·21	1	Je	8	·74	3	Jl	8○	·27	4	Au	6	·80	6	S	5	·33
4925	1881	1746	10A	·9549	17·6209	19·785	1824	4	Ap	28	·58	6	My	28	·11	7	Je	26●○	·64	2	Jl	26	·17	3	Au	24	·70
4926	1882	1747	11A	·2137	6·7292	15·942	1825	1	Ap	17	·94	3	My	17○	·47	5	Je	16●	·00	6 Jl 15 / 1 Au 14			·53 / ·06	2	S	12	·60
4927	1883	1748	11A	·4724	25·3681	14·076	1826	7	My	P○	·84	2	Je	5	·37	3	Jl	4	·90	5	Au	3	·43	6	S	1	·96
4928	1884	1749	11A	·7312	14·4764	10·233	1827	5	Ap	26●○	·21	6	My	25	·74	1	Je	24	·27	2	Jl	23	·80	4	Au	22	·33
4929	1885	1750	10A	·9899	3·5847	6·390	1828	2	Ap	14●	·57	4	My	14	·10	5 Je 12 / 7 Jl 12			·64 / ·17	1	Au	10	·70	3	S	9	·23
4930	1886	1751	11A	·2487	22·2236	4·523	1829	1	My	3	·47	3	Je	2	·00	4	Jl	1	·53	6	Jl	31	·06	7	Au	29○	·59
4931	1887	1752	11A	·5075	11·3319	0·681	1830	5	Ap	22	·84	7	My	22	·37	1	Je	20	·90	3	Jl	20	·43	4	Au	18○	·96
4932	1888	1753	11A	·7652	0·4402	24·392	1831	3 Ap 12 / 4 My 11			·21 / ·74	6	Je	10	·27	7	Jl	9	·80	2	Au	8○	·33	3	S	6	·86
4933	1889	1754	11A	·0250	19·0791	22·526	1832	2	Ap	30	·10	3	My	29	·63	5	Je	28	·16	6	Jl	27●	·70	1	Au	26	·23
4934	1890	1755	11A	·2837	8·1874	18·683	1833	6	Ap	19	·47	1	My	19	·00	2	Je	17○	·53	4	Jl	17●	·06	5 Au 15 / 7 S 14			·59 / ·12
4935	1891	1756	11A	·5425	26·8263	16·816	1834	5	My	8	·37	6	Je	6○	·90	1	Jl	6	·43	2	Au	4	·96	4	S	3	·49
4936	1892	1757	11A	·8012	15·9346	12·973	1835	2	Ap	27	·74	4	My	27○	·27	5	Je	25	·80	7	Jl	25	·33	1	Au	23	·86
4937	1893	1758	11A	·0600	5·0429	9·131	1836	7	Ap	16○	·10	1	My	15	·63	3 Je 14 / 4 Jl 13			·16 / ·69	6	Au	12	·22	7	S	10	·76
4938	1894	1759	11A	·3188	23·6819	7·264	1837	6	My	5	·00	7	Je	3	·53	2	Jl	3	·06	3	Au	1	·59	5	Au	31	·12
4939	1895	1760	11A	·5775	12·7900	3·421	1838	3	Ap	24	·37	4	My	23	·90	6	Je	22	·43	7	Jl	21	·96	2	Au	20	·49
4940	1896	1761	11A	·8363	1·8983	27·133	1839	7	Ap	13	·73	2 My 13 / 8 Je 11			·26 / ·80	5	Jl	11	·33	6	Au	9	·86	1	S	8	·39
4941	1897	1762	11A	·0950	20·5372	25·286	1840	6	My	1	·63	1	My	31	·16	2	Je	29	·69	4	Jl	29○	·22	5	Au	27●	·75
4942	1898	1763	11A	·3538	9·6455	21·424	1841	4	Ap	21	·00	5	My	20	·53	7	Je	19	·06	1	Jl	18○	·59	3	Au	17	·12
4943	1899	1764	11A	·6125	28·2844	19·557	1842	3	My	9	·90	4	Je	8	·43	5	Jl	7●○	·96	7	Au	6	·49	2	S	5	·02
4944	1900	1765	11A	·8713	17·3927	15·714	1843	7	Ap	29	26	1	My	28	·79	3	Je	27	·32	4	Jl	26	·86	6	Au	25	·39
4945	1901	1766	11A	·1300	6·5010	11·871	1844	4	Ap	17	·63	6	My	17○	·16	7	Je	15	·69	2 Jl 15 / 3 Au 13			·22 / ·75	5	S	12	·28
4946	1902	1767	11A	·3888	25·1399	10·004	1845	3	My	6●○	·58	5	Je	5	·06	6	Jl	4	·59	1	Au	3	·12	2	S	1	·65
4947	1903	1768	11A	·6476	14·2482	6·162	1846	7	Ap	25	·90	2	My	25	·43	3	Je	23	·96	5	Jl	23	·49	7	Au	22	·02
4948	1904	1769	11A	·9063	3·3585	2·319	1847	5	Ap	15●	·26	6 My 14 / 1 Je 13			·79 / ·32	2	Jl	12	·85	4	Au	11	·38	5	S	9○	·92
4949	1905	1770	11A	·1651	21·9954	0·452	1848	4	My	3	·16	5	Je	1	·69	7	Jl	1	·22	1	Jl	30	·75	3	Au	29○	·28
4950	1906	1771	11A	·4238	11·1037	24·164	1849	1	Ap	22	·53	3	My	22	·06	4	Je	20	·59	6	Jl	20	·12	7	Au	18●○	·65
4951	1907	1772	11A	·6826	0·2120	20·321	1850	5 Ap 11 / 7 My 11			·89 / ·42	1	Je	9	·96	3	Jl	9	·49	5	Au	8	·02	6	S	6	·55
4952	1908	1773	11A	·9413	18·8509	18·454	1851	4	Ap	30	·79	6	My	30	·32	7	Je	28○	·85	2	Jl	28	·38	3	Au	26	·91
4953	1909	1774	11A	·2001	7·9592	14·612	1852	2	Ap	19	·16	3	My	18	·69	5	Je	17○	·22	6	Jl	16	·75	1 Au 15 / 2 S 13			·28 / ·81
4954	1910	1775	11A	·4589	26·5981	12·745	1853	1	My	8	·06	2	Je	6○	·59	4	Jl	6	·12	5	Au	4	·65	7	S	3	·18
4955	1911	1776	11A	·7176	15·7064	8·902	1854	5	Ap	27○	·42	6	My	26	·95	1	Je	25	·48	3	Jl	25	·01	4	Au	23	·55
4956	1912	1777	11A	·9764	4·8147	5·060	1855	2	Ap	16○	·79	4	My	16●	·32	5 Je 14 / 7 Jl 14			·85 / ·38	1	Au	12	·91	3	S	11	·44
4957	1913	1778	11A	·2351	23·4535	3·193	1856	1	My	4	·69	3	Je	3	·22	4	Jl	2	·75	6	Au	1	·28	7	Au	30	·81
4958	1914	1779	11A	·4939	12·5618	26·905	1857	6	Ap	24	·06	7	My	23	·59	2	Je	22	·12	3	Jl	21	·65	5	Au	20	·18
4959	1915	1780	11A	·7526	1·6701	23·062	1858	3	Ap	13	·42	4 My 12 / 6 Je 11			·95 / ·48	1	Jl	11	·01	2	Au	9○	·54	4	S	8	·08

N.B.—For tithis by other siddhāntas add to the above algebraically as follows :—

Sūrya siddhānta—*cont.*

Āśvina.				Kārttika.				Mārgaśirsha.			A.D.	Pausha.			A.D.	Māgha.			Phālguna.			Chaitra.		
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.		Week-day.	Month.	Day.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	
2	S	23	·54	4	O	23	·07	5	N	21	·60	7	D	21○	·13	06	1	Jr 19	·66	3	F	18	·19	4	Mr 19	·72
1	O	12	·44	2	N	10	·97	4	D	10●	·50	07	6	Jr 9	·03		7	F 7	·56	2	Mr	9	·09	3	Ap 7	·62
5	O	1	·80	7	O	31○	·34	1	N	29●	·87		3	D 29	·40	08	4	Jr 27	·93	6	F	26	·46	7	Mr 26	·99
3	S	20	·17	4	O	19○	·70	6	N	18●	·23		7	D 17	·76	09	2	Jr 16	·29	3	F	14	·82	5	Mr 16	·36
2	O	9○	·07	3	N	7	·60	5	D	7	·13	10	6	Jr 5	·66		1	F 4	·19	2	Mr	5	·72	4	Ap 4●	·25
6	S	28	·44	7	O	27	·97	2	N	26	·50		4	D 26	·03	11	5	Jr 24	·56	7	F	23○	·09	1	Mr 24	·62
3	S	17	·80	5	O	17	·33	6	N	15	·86		1	D 15	·40	12	2	Jr 13	·93	4	F	12○	·46	5	Mr 12	·99
2	O	5	·70	4	N	4	·23	5	D	3	·76	13	7	Jr 2	·29		1	Jr 31●○	·82	3	Mr	2	·35	4	Mr 31	·88
7	S	25	·07	1	O	24	·60	3	N	23	·13		4	D 22	·66	14	6	Jr 21	·19	7	F	19	·72	2	Mr 21	·25
5	O	13	·97	7	N	12	·50	2	D	12○	·03	15	3	Jr 10	·56		5	F 9	·09	6	Mr	10	·62	1	Ap 9	·15
3	O	3	·33	4	N	1	·86	6	D	1○	·39		7	D 30	·92	16	2	Jr 29	·46	3	F	27	·99	5	Mr 28	·52
7	S	21	·70	2	O	21	·23	3	N	19●○	·76		5	D 19	·29	17	6	Jr 17	·82	1	F	16	·35	2	Mr 17	·88
6	O	10	·60	1	N	9●	·13	2	D	8	·66	18	4	Jr 7	·19		5	F 5	·72	7	Mr	7	·25	1	Ap 5○	·78
3	S	29○	·96	5	O	29	·50	7	N	28	·03		1	D 27	·56	19	3	Jr 26	·09	4	F	24	·62	6	Mr 26○	·15
1	S	19●○	·33	2	O	18	·86	4	N	17	·39		5	D 16	·92	20	7	Jr 15	·45	1	F	13	·98	3	Mr 14○	·52
7	O	7	·23	1	N	5	·76	3	D	5	·29	21	4	Jr 3	·82		6	F 2	·35	7	Mr	3●	·88	2	Ap 2	·41
4	S	26	·60	6	O	26	·13	7	N	24	·66		2	D 24	·19	22	3	Jr 22○	·72	5	F	21	·25	6	Mr 22	·78
{1	S	15	·96	5	N	14	·02	6	D	13	·56		Pausha Kshaya.			23	1	Jr 12○	·09	2	F	10●	·62	{4	Mr 12	·15
{3	O	15	·49									24	5	Jr 1○	·45									{5	Ap 10	·68
7	O	4	·86	2	N	3	·39	8	D	2	·92		2	D 20●	·82		6	Jr 30	·98	1	F	29	·51	3	Mr 30	·04
5	S	23	·23	6	O	22	·76	1	N	21	·29	26	1	Jr 8	·72	25	4	Jr 19	·35	5	F	17	·88	7	Mr 19	·41
4	O	12	·13	5	N	10○	·66	7	D	10	·19		6	D 29	·08		3	F 7	·25	4	Mr	8	·78	6	Ap 7	·31
1	O	1	·49	3	O	31○	·02	4	N	29	·55		3	D 18	·45	27	7	Jr 27	·62	2	F	26	·15	3	Mr 27	·68
5	S	20	·86	7	O	20○	·39	1	N	18	·92	29	2	Jr 5	·35	28	4	Jr 16	·98	6	F	15	·51	1	Mr 16	·04
4	O	8●	·76	6	N	7	·29	7	D	6	·82		6	D 25	·72		3	F 3	·88	5	Mr	5○	·41	6	Ap 3	·94
2	S	28●	·12	3	O	27	·66	5	N	26	·19		4	D 15	·08	30	1	Jr 24	·25	2	F	22●○	·78	4	Mr 24	·31
6	S	17	·49	1	O	17	·02	2	N	15	·55	32	2	Jr 2	·98	31	5	Jr 13	·61	7	F	12○	·14	1	Mr 13	·68
5	O	6	·39	6	N	4	·92	1	D	4	·45		7	D 22○	·35		4	F 1	·51	6	Mr	2	·04	7	Mr 31	·57
2	S	24	·76	4	O	24	·29	5	N	22	·82	34	6	Jr 10	·25	33	1	Jr 20	·88	3	F	19	·41	4	Mr 20	·94
1	O	13	·65	3	N	12	·18	4	D	11○	·72		3	D 30	·61		7	F 8	·78	2	Mr	10	·31	3	Ap 8	·84
6	O	3	·02	7	N	1	·55	2	D	1○	·08	35	7	D 19	·98	35	5	Jr 29	·14	6	F	27	·67	1	Mr 29	·20
3	S	22	·39	4	O	21	·92	6	N	20●	·45	36	6	Jr 6	·88	36	2	Jr 18	·51	4	F	17	·04	5	Mr 17	·57
2	O	10○	·29	3	N	8●	·82	5	D	8	·35		4	D 27	·24		1	F 5	·41	2	Mr	6	·94	4	Ap 5○	·47
6	S	29○	·65	1	O	29	·18	2	N	27	·71	37	1	D 16	·61	38	5	Jr 25	·78	7	F	24	·31	1	Mr 25○	·84
4	S	19○	·02	5	O	18	·55	7	N	17	·08	40	7	Jr 4	·51	39	3	Jr 15	·14	4	F	13	·67	6	Mr 15	·20
2	O	7	·92	4	N	6	·45	5	D	5	·98		4	D 23	·88		2	F 3○	·04	3	Mr	3●	·57	5	Ap 2	·10
7	S	26	·28	1	O	25	·82	3	N	24	·35	42	3	Jr 11○	·77	41	6	Jr 22○	·41	7	F	20	·94	2	Mr 22	·47
{4	S	15	·65	7	N	13	·71	2	D	13	·24	43	1	Jr 1	·14		5	F 10	·30	6	Mr	11	·84	1	Ap 10	·37
{6	O	15	·18										5	D 21●	·51		2	Jr 30	·67	4	Mr	1	·20	5	Mr 30	·73
3	O	4	·55	5	N	3	·08	6	D	2	·61	45	4	Jr 8	·41	44	7	Jr 20	·04	1	F	18	·57	3	Mr 19	·10
7	S	23	·92	2	O	23	·45	3	N	21○	·98		1	D 28	·77		5	F 6	·94	7	Mr	8	·47	2	Ap 7	·00
6	O	11	·81	1	N	10○	·34	2	D	9	·88	46	6	D 18	·14	46	3	Jr 27	·30	4	F	25	·83	6	Mr 27	·36
4	O	1	·18	5	O	30○	·71	7	N	29	·24	48	5	Jr 6	·04	47	7	Jr 16	·67	2	F	15	·20	3	Mr 16○	·73
1	S	20	·55	3	O	20●	·08	4	N	18	·61		2	D 25	·40		6	F 4	·57	1	Mr	5○	·10	2	Ap 3	·63
7	O	9●	·45	1	N	7	·98	3	D	7	·51	49	6	D 14	·77	49	3	Jr 23	94	5	F	22●○	·47	7	Mr 24	·00
4	S	27●	·81	6	O	27	·34	7	N	25	·87	51	5	Jr 2○	·37	50	1	Jr 13	·30	2	F	11●	·83	4	Mr 13	·36
2	S	17	·18	3	O	16	·71	5	N	15	·24		3	D 23○	·04		7	F 1	20	1	Mr	2	·73	3	Ap 1	·26
1	O	6	·08	2	N	4	·61	4	D	4	·14	53	1	Jr 9	·93	52	4	Jr 21	·57	6	F	20	·10	7	Mr 20	63
5	S	25	·44	6	O	24	·98	1	N	23	·51		6	D 30	·30		3	F 8	·46	5	Mr	10	·00	6	Ap 8	·53
4	O	13	·34	5	N	11	·87	7	D	11●○	·40	54	3	D 19	·67	54	7	Jr 28	·83	2	F	27	·36	3	Mr 28	·89
1	O	2	·71	3	N	1	·24	4	N	30	·77	56	2	Jr 7	·57	55	5	Jr 18	·20	6	F	16	·73	1	Mr 18	·26
6	S	22	·08	7	O	21○	·61	2	N	20	·14		6	D 26	·93		4	F 6	10	5	Mr	6	·68	7	Ap 5●○	·16
4	O	10○	·97	6	N	9	·50	1	D	9	·04	57	4	D 16	·30	57	1	Jr 25	·46	2	F	23	·98	4	Mr 25	·52
2	S	29●○	·34	3	O	28	·87	5	N	27	·40	59	3	Jr 4	·20	58	5	Jr 14	·83	7	F	13○	·36	1	Mr 14●	·89
6	S	18●	·71	1	O	18	·24	2	N	16	·77						4	F 2○	73	6	Mr	4	·26	7	Ap 2	·79
3	O	7	·61	7	N	6	·14	1	D	5	·67															

(1) for Ārya siddhānta +·06; (2) for Brahma siddhānta −·11; and (3) for Siddhānta Śirōmaṇi −·04.

TABLE II.—

Kaliyuga	Vikrama era.	Śaka era.	Commencement of solar year. Month and day A.D. Fraction of day.	First new-moon in Solar Year.	Anomaly of first new moon.	Christian era.	Vaiśākha. Week-day. Month. Day.	Fraction.	Jyeshṭha. Week-day. Month. Day.	Fraction.	Āshāḍha. Week-day. Month. Day.	Fraction.	Śrāvaṇa. Week-day Month. Day.	Fraction.	Bhādrapada. Week-day. Month. Day.	Fraction.
						A.D.										
4960	1916	1781	12A ·0114	20·3090	21·195	1859	2 My 2	·32	3 My 31	·85	5 Je 30	·38	6 Jl 29○	·91	1 Au 28	·44
4961	1917	1782	11A ·2702	9·4173	17·352	1860	6 Ap 20	·69	1 My 20	·22	2 Je 18	·75	4 Jl 18○	·28	5 Au 16	·81
4962	1918	1783	11A ·5289	28·0562	15·487	1861	5 My 9	·58	7 Je 8	·12	1 Jl 7●	·65	3 Au 6	·18	4 S 4	·71
4963	1919	1784	11A ·7877	17·1645	11·643	1862	2 Ap 28	·95	4 My 28○	·48	6 Je 27	·01	7 Jl 26	·54	2 Au 25	·07
4964	1920	1785	12A ·0464	6·2728	7·800	1863	7 Ap 18	·32	1 My 17○	·85	3 Je 16	·38	4 Jl 15 / 6 Au 14	·91 / ·44	7 S 12	·97
4965	1921	1786	11A ·3052	24·9117	5·633	1864	6 My 6●	·22	7 Je 4	·75	2 Jl 4	·28	3 Au 2	·81	5 S 1	·34
4966	1922	1787	11A ·5639	14·0200	2·091	1865	3 Ap 25	·58	5 My 25	·11	6 Je 23	·64	1 Jl 23	·18	2 Au 21	·71
4967	1923	1788	11A ·8227	3·1283	25·903	1866	7 Ap 14	·95	2 My 14 / 4 Je 13	·48 / ·01	5 Jl 12	·54	7 Au 11	·07	1 S 9○	·60
4968	1924	1789	12A ·0814	21·7672	23·936	1867	6 My 3	·85	1 Je 2	·38	2 Jl 1	·91	4 Jl 31	·44	5 Au 29○	·97
4969	1925	1790	11A ·3402	10·8755	20·093	1868	4 Ap 22	·22	5 My 21	·75	7 Je 20	·28	1 Jl 19	·81	3 Au 18●	·34
4970	1926	1791	11A ·5990	29·5144	18·226	1869	1 Ap 11 / 3 My 11	·58 / ·11	4 Je 9	·64	6 Jl 9○	·17	7 Au 7	·70	2 S 6	·24
4971	1927	1792	11A ·8577	18·6227	14·384	1870	7 Ap 30	·48	2 My 30	·01	3 Je 28○	·54	5 Jl 28	·07	6 Au 26	·60
4972	1928	1793	12A ·1165	7·7310	10·541	1871	4 Ap 19	·85	6 My 19	·38	7 Je 17●○	·91	2 Jl 17	·44	3 Au 15 / 5 S 14	·97 / ·50
4973	1929	1794	11A ·3752	26·3686	8·674	1872	3 My 7○	·74	5 Je 6●	·28	6 Jl 5	·81	1 Au 4	·34	2 S 2	·87
4974	1930	1795	11A ·6340	15·4781	4·831	1873	1 Ap 27○	·11	2 My 26	·64	4 Je 25	·17	5 Jl 24	·70	7 Au 23	·23
4975	1931	1796	11A ·8927	4·5864	0·989	1874	5 Ap 16○	·48	7 My 16	·01	1 Je 14 / 3 Jl 14	·54 / ·07	4 Au 12	·60	6 S 11	·13
4976	1932	1797	12A ·1515	23·2254	26·676	1875	4 My 5	·38	5 Je 3	·91	7 Jl 3	·44	1 Au 1	·97	3 Au 31	·50
4977	1933	1798	11A ·4103	12·2836	22·834	1876	1 Ap 23	·74	3 My 23	·27	4 Je 21	·80	6 Jl 21	·34	7 Au 19○	·87
4978	1934	1799	11A ·6690	1·4419	18·991	1877	6 Ap 13	·11	7 My 12 / 2 Je 11	·64 / ·17	3 Jl 10	·70	5 Au 9○	·23	6 S 7	·76
4979	1935	1800	11A ·9278	20·0808	17·124	1878	5 My 2	·01	6 My 31	·54	1 Je 30	·07	2 Jl 29○	·60	4 Au 28	·13
4980	1936	1801	12A ·1865	9·1891	13·281	1879	2 Ap 21	·38	3 My 20	·91	5 Je 19	·44	6 Jl 18●	·97	1 Au 17	·50
4981	1937	1802	11A ·4453	27·8280	11·415	1880	1 My 9	·27	2 Je 7○	·80	4 Jl 7	·33	5 Au 5	·86	7 S 4	·40
4982	1938	1803	11A ·7040	16·9363	7·572	1881	5 Ap 28	·64	7 My 28●○	·17	1 Je 26	·70	3 Jl 26	·23	4 Au 24	·76
4983	1939	1804	11A ·9628	6·0446	3·729	1882	3 Ap 18	·01	4 My 17●	·54	6 Je 16	·07	7 Jl 15 / 2 Au 14	·60 / ·13	3 S 12	·66
4984	1940	1805	12A ·2216	24·6835	1·862	1883	1 My 6	·90	3 Je 5	·44	4 Jl 4	·97	6 Au 3	·50	1 S 2	·03
4985	1941	1806	11A ·4803	13·7918	25·574	1884	6 Ap 25	·27	7 My 24	·80	2 Je 23	·33	3 Jl 22	·86	5 Au 21	·39
4986	1942	1807	11A ·7391	2·9008	21·732	1885	3 Ap 14	·64	5 My 14 / 6 Je 12	·17 / ·70	1 Jl 12	·23	2 Au 10	·76	4 S 9○	·29
4987	1943	1808	11A ·9978	21·5390	19·885	1886	2 My 3	·54	4 Je 2	·07	5 Jl 1	·60	7 Jl 31	·13	1 Au 29	·66
4988	1944	1809	12A ·2566	10·6473	16·022	1887	6 Ap 22	·90	1 My 22	·43	2 Je 20	·96	4 Jl 20○	·50	6 Au 19●	·03
4989	1945	1810	11A ·5153	29·2862	14·155	1888	5 My 10	·80	7 Je 9	·33	1 Jl 8○	·86	3 Au 7	·39	4 S 5	·92
4990	1946	1811	11A ·7741	18·3945	10·313	1889	3 Ap 30	·17	4 My 29	·70	6 Je 28●○	·23	7 Jl 27	·76	2 Au 26	·29
4991	1947	1812	12A ·0328	7·5028	6·470	1890	7 Ap 19	·54	2 My 19○	·07	3 Je 17●	·60	5 Jl 17	·13	6 Au 15 / 1 S 14	·66 / ·19
4992	1948	1813	12A ·2916	26·1416	4·603	1891	6 My 8○	·43	7 Je 6	·96	2 Jl 6	·49	4 Au 5	·02	5 S 3	·55
4993	1949	1814	11A ·5504	15·2499	0·760	1892	3 Ap 26○	·80	5 My 26	·33	6 Je 24	·86	1 Jl 24	·39	2 Au 22	·92
4994	1950	1815	11A ·8091	4·3532	24·472	1893	1 Ap 16	·17	2 My 15	·70	4 Je 14 / 5 Jl 13	·23 / ·76	7 Au 12	·29	1 S 10	·82
4995	1951	1816	12A ·0079	22·8971	22·605	1894	7 My 5	·06	1 Je 3	·59	3 Jl 3	·13	4 Au 1	·66	6 Au 31○	·19
4996	1952	1817	12A ·3266	12·1054	18·763	1895	4 Ap 24	·43	5 My 23	·96	7 Je 22	·49	2 Jl 22	·02	3 Au 20●○	·55
4997	1953	1818	11A ·5854	1·2137	14·920	1896	1 Ap 12	·80	3 My 12 / 4 Je 10	·33 / ·86	6 Jl 10	·39	7 Au 8●○	·92	2 S 7	·45
4998	1954	1819	11A ·8441	19·8526	13·053	1897	7 My 1	·70	2 My 31	·23	3 Je 29	·76	5 Jl 29	·29	6 Au 27	·82
4999	1955	1820	12A ·1029	8·9609	9·210	1898	5 Ap 21	·06	6 My 20	·59	1 Je 19○	·12	2 Jl 18	·65	4 Au 17	·19
5000	1956	1821	12A ·3617	27·5588	7·314	1899	3 My 9	·96	5 Je 8○	·49	7 Jl 8	·02	1 Au 6	·55	3 S 5	·08
5001	1957	1822	12A ·6204	16·7081	5·504	1900	1 Ap 29	·33	2 My 28●○	·86	4 Je 27	·39	5 Jl 26	·92	7 Au 25	·45
5002	1958	1823	12A ·8792	5·8164	27·215	1901	5 Ap 18	·69	7 My 18●	·23	1 Je 16	·76	3 Jl 16 / 4 Au 14	·29 / ·82	6 S 13	·35
5003	1959	1824	13A ·1379	24·4553	25·349	1902	4 My 7	·59	6 Je 6	·12	7 Jl 5	·65	2 Au 4	·18	3 S 2	·71
5004	1960	1825	13A ·3967	13·5636	21·506	1903	1 Ap 26	·96	3 My 26	·49	5 Je 25	·02	6 Jl 24	·55	1 Au 23	·08
5005	1961	1826	12A ·6554	2·6719	17·663	1904	6 Ap 15	·33	7 My 14 / 2 Je 13	·86 / ·39	3 Jl 12	·92	5 Au 11	·45	6 S 9	·98
5006	1962	1827	12A ·9142	21·3107	15·798	1905	5 My 4	·22	6 Je 2	·75	1 Jl 2	·29	2 Jl 31○	·82	4 Au 30●	·35
5007	1963	1828	13A ·1729	10·4190	11·954	1906	2 Ap 23	·59	4 My 23	·12	5 Je 21	·65	7 Jl 21○	·18	1 Au 19●	·71
5008	1964	1829	13A ·4317	29·0579	10·087	1907	1 My 12	·49	3 Je 11	·02	4 Jl 10○	·55	6 Au 9	·08	7 S 7	·61
5009	1965	1830	12A ·6905	18·1662	6·214	1908	5 Ap 30	·86	7 My 30	·39	1 Je 28●	·92	3 Jl 28	·45	4 Au 26	·98
5010	1966	1831	12A ·9492	7·2745	2·401	1909	3 Ap 20	·22	4 My 19○	·75	6 Je 18●	·28	7 Jl 17 / 2 Au 16	·81 / ·35	3 S 14	·88
5011	1967	1832	13A ·2080	25·9134	0·535	1910	2 My 9○	·12	3 Je 7	·65	5 Jl 7	·18	6 Au 5	·71	1 S 4	·24
5012	1968	1833	13A ·4667	15·0217	24·246	1911	6 Ap 28	·49	1 My 28	·02	2 Je 26	·55	4 Jl 26	·08	5 Au 24	·61
5013	1969	1834	12A ·7255	4·1300	20·404	1912	3 Ap 16●	·85	5 My 16	·39	6 Je 14 / 1 Jl 14	·92 / ·45	2 Au 12	·98	4 S 11○	·51
5014	1970	1835	12A ·9842	22·7689	18·537	1913	2 My 5	·75	4 Je 4	·28	5 Jl 3	·81	7 Au 2	·34	1 Au 31○	·87

N.B.—For tithis by other siddhāntas add to the above algebraically as follows :—

Sūrya siddhānta—*cont.*

Āśvina.				Kārttika.				Mārgaśīrsha.				A.D.	Pausha.				A.D.	Māgha.				Phālguna.				Chāitra.			
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
2	S	26	·97	4	O	26	·50	6	N	25	·03		7	D	24	·56	**60**	2	Jr	23○	·10	3	F	21	·63	5	Mr	22	·16
7	S	15	·34	3	N	13	·40	4	D	12	·93	**61**	6	Jr	11●	·46		7	F	9	·99	2	Mr	11	·52	4	Ap	10	·05
1	O	14	·87										3	D	31	·83	**62**	5	Jr	30	·36	6	F	28	·89	1	Mr	30	·42
6	O	4	·24	7	N	2	·77	2	D	2○	·30		1	D	21●	·20	**63**	2	Jr	19	·73	4	F	18	·26	5	Mr	19	·79
3	S	23	·60	5	O	23	·14	6	N	21○	·67							1	F	7	·62	3	Mr	8	·16	4	Ap	6	·69
2	O	12	·50	4	N	11○	·03	5	D	10	·56	**64**	7	Jr	9	·09	**65**	5	Jr	26	·99	7	F	25	·52	2	Mr	27○	·05
6	S	30	·87	1	O	30	·40	2	N	28	·93		4	D	28	·46	**66**	3	Jr	16	·36	4	F	14	·89	6	Mr	16○	·42
4	S	20○	·24	5	O	19	·77	7	N	18	·30		1	D	17	·83		2	F	4	·26	3	Mr	5●○	·79	5	Ap	4	·32
3	O	9	·13	4	N	7	·66	6	D	7	·20	**67**	7	Jr	5	·73	**68**	6	Jr	24	·62	1	F	23	·15	2	Mr	23	·69
7	S	28	·50	2	O	28	·03	3	N	26	·56		5	D	26	·09	**69**	3	Jr	12○	·99	5	F	11	·52	7	Mr	13	·05
4	S	16	·87	6	O	16	·40	7	N	14	·93		2	D	14	·46		2	Jr	31	·89	4	Mr	2	·42	5	Mr	31	·95
3	O	5	·77	5	N	4	·30	6	D	3	·83	**70**	1	Jr	2○	·36	**71**	7	Jr	21	·26	1	F	19	·79	3	Mr	21	·32
1	S	25	·13	2	O	24	·66	4	N	23	·19		5	D	22○	·72		6	F	9	·15	7	Mr	9	·68	2	Ap	8	·21
7	O	14	·03	1	N	12	·56	3	D	12●	·09	**72**	4	Jr	10	·62	**73**	3	Jr	28	·52	5	F	27	·05	6	Mr	28	·58
4	O	2	·40	5	O	31○	·93	7	N	30	·46		1	D	29	·99	**74**	7	Jr	17	·89	2	F	16	·42	3	Mr	17	·95
1	S	21	·76	3	O	21○	·30	4	N	19	·83		6	D	19	·36		6	F	5	·78	1	Mr	7	·31	2	Ap	5●	·85
7	O	10●○	·66	2	N	9	·19	3	D	8	·72	**75**	5	Jr	7	·25	**76**	4	Jr	26	·15	5	F	24○	·68	7	Mr	25	·21
5	S	30●	·03	6	O	29	·56	1	N	28	·09		2	D	27	·62	**77**	1	Jr	14	·52	3	F	13○	·05	4	Mr	14●	·58
2	S	18	·40	3	O	17	·93	5	N	16	·46		6	D	15	·99		7	F	2○	·42	1	Mr	3	·95	3	Ap	2	·48
1	O	7	·29	2	N	5	·82	4	D	5	·36	**78**	5	Jr	3	·89	**79**	4	Jr	22●	·78	6	F	21	·31	7	Mr	22	·84
5	S	26	·66	7	O	26	·19	1	N	24	·72		3	D	24	·25		3	F	10	·68	5	Mr	11	·21	6	Ap	9	·74
3	S	16	·03	6	N	14	·09	7	D	13○	·62	**80**	2	Jr	12	·15	**81**	1	Jr	30	·05	2	F	28	·58	4	Mr	30	·11
4	O	15	·56										6	D	31	·52	**82**	5	Jr	19	·42	6	F	17	·95	1	Mr	19	·48
1	O	3	·93	3	N	2	·46	4	D	1○	·99		3	D	20	·88		4	F	7	·31	5	Mr	8	·84	7	Ap	7○	·37
6	S	23	·29	7	O	22	·82	2	N	21○	·35	**83**	2	Jr	8	·78	**84**	1	Jr	27	·68	3	F	26	·21	4	Mr	26○	·74
5	O	12	·19	6	N	10	·72	1	D	10	·25		7	D	29	·15	**85**	6	Jr	16	·05	7	F	14	·58	2	Mr	16○	·11
2	O	1○	·56	4	O	31	·09	5	N	29	·62		4	D	17	·52													
6	S	19○	·92	1	O	19	·46	2	N	17	·99	**86**	3	Jr	5	·41		4	F	3	·94	6	Mr	5	·48	1	Ap	4	·01
5	O	8	·82	7	N	7	·35	1	D	6	·88		7	D	25	·78	**87**	2	Jr	24○	·31	3	F	22	·84	5	Mr	24	·37
3	S	28	·19	4	O	27	·72	6	N	26	·25		5	D	15	·15	**88**	6	Jr	13○	·68	1	F	12	·21	2	Mr	12	·74
7	S	17	·56	2	O	17	·09	3	N	15	·62															4	Ap	11	·27
6	O	5	·45	7	N	3	·98	2	D	3	·52	**89**	4	Jr	2○	·05		5	Jr	31	·58	7	Mr	2	·11	1	Mr	31	·64
3	S	24	·82	5	O	24	·35	6	N	22	·88		1	D	22	·41	**90**	2	Jr	20	·94	4	F	19	·47	6	Mr	21	·00
2	O	13	·72	4	N	12○	·25	5	D	11●	·78	**91**	7	Jr	10	·31		1	F	8	·84	3	Mr	10	·37	4	Ap	8	·90
7	O	3	·09	1	N	1○	·62	3	D	1	·15		4	D	30	·68	**92**	6	Jr	29	·21	7	F	27	·74	2	Mr	28	·27
4	S	21	45	5	O	20○	·98	7	N	19	·51		2	D	19	·04	**93**	3	Jr	17	·57	5	F	16	·11	6	Mr	17	·64
8	O	10	·35	4	N	8	·88	6	D	8	·41	**94**	7	Jr	6	·94		2	F	5	·47	4	Mr	7○	·00	5	Ap	5●	·53
7	S	29●	·72	2	O	29	·25	3	N	27	·78		5	D	27	·31	**95**	6	Jr	25	·84	1	F	24○	·37	2	Mr	25	·90
5	S	19	·08	6	O	18	·61	1	N	17	·15		2	D	16	·68	**96**	4	Jr	15	·21	5	F	13○	·74	7	Mr	14	·27
3	O	6	·98	5	N	5	·51	7	D	5	·04	**97**	1	Jr	3	·57		3	F	2	·10	4	Mr	3	·63	6	Ap	2	·17
1	S	26	·35	2	O	25	·88	4	N	24	·41		5	D	23○	·94	**98**	7	Jr	22●	·47	2	F	21	·00	3	Mr	22	·53
5	S	15	·72	1	N	13	·78	3	D	13○	·31	**99**	4	Jr	11	·84		6	F	10	·37	7	Mr	11	·90	2	Ap	10	·43
7	O	15	·25																										
4	O	4	·61	6	N	3	·14	7	D	2○	·67	**19**	2	Jr	1	·21	**00**	3	Jr	30	·74	5	Mr	1	·27	6	Mr	30	·80
1	S	23	·98	3	O	23	·51	5	N	22●	·04		6	D	21	·57	**01**	1	Jr	20	·10	2	F	18	·63	4	Mr	20	·16
7	O	12○	·88	2	N	11●	·41	3	D	10	·94	**02**	5	Jr	9	·47		7	F	8	·00	1	Mr	9	·53	3	Ap	8○	·06
5	O	2○	·25	6	O	31●	·78	1	N	30	·31		2	D	29	·84	**03**	4	Jr	28	·37	5	F	26	·90	7	Mr	28●○	·43
2	S	21●○	·61	4	O	21	·14	5	N	19	·67		7	D	19	·20	**04**	1	Jr	17	·73	3	F	16	·27	4	Mr	16●	·80
1	O	9	·51	3	N	8	·04	4	D	7	·57	**05**	6	Jr	6	·10		7	F	4○	·63	2	Mr	6	·16	3	Ap	4	·69
5	S	28	·88	7	O	28	·41	1	N	26	·94		3	D	26	·47	**06**	5	Jr	25○	·00	6	F	23	·53	1	Mr	25	·06
3	S	18	·24	4	O	17	·77	6	N	16	·31		7	D	15	·84	**07**	2	Jr	14●○	·37	3	F	12	·90	5	Mr	14	·43
2	O	7	·14	3	N	5	·67	5	D	5	·20	**08**	6	Jr	3	·73										6	Ap	12	·96
6	S	25	·51	1	O	25	·04	2	N	23	·57		4	D	23●	·10		1	F	2	·26	2	Mr	2	·79	4	Ap	1	·33
5	O	14	·41	6	N	12○	·94	1	D	12	·47	**09**	5	Jr	21	·63		7	F	20	·16	1	Mr	21	·69				
2	O	3	·77	4	N	2●○	·30	5	D	1	·83	**10**	3	Jr	11	·00		4	F	9	·53	6	Mr	11	·06	7	Ap	9	·59
7	S	23	·14	1	O	22●	·67	3	N	21	·20		7	D	31	·37	**11**	1	Jr	29	·90	5	F	28	·43	4	Mr	29	·96
6	O	11●	·04	7	N	9	·57	2	D	9	·10	**13**	3	Jr	7	·63		4	D	20	·73	**12**	6	Jr	19	·26	7	F	17	·79	2	Mr	18○	·32
3	S	30	·41	4	O	29	·94	6	N	28	·47		1	D	28	·00		5	F	6	·16	6	Mr	7○	·69	1	Ap	6	·22
												14	2	Jr	26	·53		4	F	25○	·06	5	Mr	26	·59				

(1) for Ārya siddhānta +·06; (2) for Brahma siddhānta −·11; and (3) for Siddhānta Śiromaṇi −·05.

TABLE II.—

Kaliyuga.	Vikrama era.	Śaka era.	Commencement of solar year. Month and day A.D.	Fraction of day.	First new moon in solar year.	Anomaly of first new moon.	Christian era.	**Vaiśākha.** Week-day. Month. Day.	Fraction.	**Jyeshṭha.** Week-day. Month. Day.	Fraction.	**Ashāḍha.** Week-day. Month. Day.	Fraction.	**Śrāvaṇa.** Week-day. Month. Day.	Fraction.	**Bhādrapada.** Week-day. Month. Day.	Fraction.
5015	1971	1836	13A	·2430	11·8772	14·694	A.D. 1914	7 Ap 25	.12	1 My 24	·65	3 Je 23	·18	4 Jl 22	·71	6 Au 21●	○·24
5016	1972	1837	13A	·5018	0·9855	10·851	1915	4 Ap 14 / 6 My 14	·49 / ·02	7 Je 12	·55	2 Jl 12	·08	3 Au 10●	·61	5 S 9	·14
5017	1973	1838	12A	·7605	19·6244	8·985	1916	3 My 2	·38	4 My 31	·91	6 Je 30○	·45	7 Jl 29	·98	2 Au 28	·51
5018	1974	1839	13A	·0193	8·7327	5·142	1917	7 Ap 21	·75	2 My 21	·28	3 Jc 19●○	·81	5 Jl 19	·34	6 Au 17 / 1 S 16	·87 / ·40
5019	1975	1840	13A	·2780	27·3715	3·275	1918	6 My 10	·65	1 Je 9●○	·18	2 Jl 8	·71	4 Au 7	·24	5 S 5	·77
5020	1976	1841	13A	·5338	16·4758	26·987	1919	4 Ap 30	·02	5 My 29●	·55	7 Je 28	·08	1 Jl 27	·61	3 Au 26	·14
5021	1977	1842	12A	·7955	5·5881	23·144	1920	1 Ap 18○	·38	2 My 17	·91	4 Je 16	·44	5 Jl 15 / 7 Au 14	·97 / ·51	2 S 13	·04
5022	1978	1843	13A	·0543	24·2270	21·278	1921	7 My 7	·28	1 Je 5	·81	3 Jl 5	·34	4 Au 3	·87	6 S 2	·40
5023	1979	1844	13A	·3130	13·3353	17·435	1922	4 Ap 26	·65	6 My 26	·18	7 Je 24	·71	2 Jl 24	·24	3 Au 22	·77
5024	1980	1845	13A	·5718	2·4436	13·592	1923	2 Ap 16	·01	3 My 15 / 5 Je 14	·55 / ·08	6 Jl 13	·61	1 Au 12○	·14	2 S 10●	·67
5025	1981	1846	12A	·8306	21·0825	11·725	1924	7 My 3	·91	2 Je 2	·44	3 Jl 1	·97	5 Jl 31○	·50	7 Au 30●	·03
5026	1982	1847	13A	·0893	10·1908	7·883	1925	5 Ap 23	·28	6 My 22	·81	1 Je 21	·34	2 Jl 20○	·87	4 Au 19	·40
5027	1983	1848	13A	·3481	28·8297	6·016	1926	4 My 12	·18	5 Je 10	·71	7 Jl 10●	·24	1 Au 8	·77	3 S 7	·30
5028	1984	1849	13A	·6068	17·2380	2·173	1927	1 My 1	·54	3 My 31○	·07	4 Je 29●	·61	6 Jl 29	·14	7 Au 27	·67
5029	1985	1850	12A	·8656	7·0463	25·885	1928	5 Ap 19	·91	7 My 19●○	·44	1 Je 17	·97	3 Jl 17 / 5 Au 16	·50 / ·03	6 S 14	·56
5030	1986	1851	13A	·1243	25·6852	24·018	1929	4 My 8●○	·81	6 Je 7	·34	7 Jl 6	·87	2 Au 5	·40	3 S 3	·93
5031	1987	1852	13A	·3831	14·7035	20·175	1930	2 Ap 28	·18	3 My 27	·71	5 Je 26	·24	6 Jl 25	·77	1 Au 24	·30
5032	1988	1853	13A	·6419	3·9018	16·333	1931	6 Ap 17●	·54	1 My 17	·07	2 Je 15 / 4 Jl 15	·60 / ·13	5 Au 13	·67	7 S 12○	·20
5033	1989	1854	12A	·9006	22·5406	14·467	1932	5 My 5	·44	6 Je 3	·97	1 Jl 3	·50	3 Au 2	·03	4 Au 31○	·56
5034	1990	1855	13A	·1594	11·6489	10·623	1933	2 Ap 24	·81	4 My 24	·34	5 Je 22	·87	7 Jl 22	·40	1 Au 20●	·93
5035	1991	1856	13A	·4181	0·7572	6·780	1934	7 Ap 14 / 1 My 13	·17 / ·71	3 Je 12	·24	4 Jl 11○	·77	6 Au 10●	·30	7 S 8	·83
5036	1992	1857	13A	·6768	19·3962	4·914	1935	6 My 3	·07	7 Je 1	·60	2 Jl 1○	·13	3 Jl 30	·66	5 Au 29	·19
5037	1993	1858	12A	·9356	8·5044	1·071	1936	3 Ap 21	·44	4 My 20	·97	6 Je 19●○	·50	1 Jl 19	·03	2 Au 17 / 4 S 16	·56 / ·09
5038	1994	1859	13A	·1944	27·1433	26·759	1937	2 My 10	·34	3 Je 8	·87	5 Jl 8	·40	6 Au 6	·93	1 S 5	·46
5039	1995	1860	13A	·4531	16·2516	22·916	1938	6 Ap 29○	·70	1 My 29	·23	2 Je 27	·77	4 Jl 27	·30	5 Au 25	·83
5040	1996	1861	13A	·7119	5·3599	19·073	1939	4 Ap 19●○	·07	5 My 18	·60	7 Je 17	·13	1 Jl 16 / 3 Au 15	·66 / ·19	4 S 13	·72
5041	1997	1862	12A	·9707	23·9988	17·207	1940	2 My 6	·97	4 Je 5	·50	6 Jl 5	·03	7 Au 3	·56	2 S 2	·09
5042	1998	1863	13A	·2294	13·1071	13·364	1941	7 Ap 26	·34	1 My 25	·87	3 Je 24	·40	4 Jl 23	·93	6 Au 22○	·46
5043	1999	1864	13A	·4882	2·2154	9·521	1942	4 Ap 15	·70	6 My 15 / 7 Je 13	·23 / ·76	2 Jl 13	·29	3 Au 11○	·83	5 S 10●	·36
5044	2000	1865	13A	·7469	20·8543	7·654	1943	3 My 4	·60	5 Je 3	·13	6 Jl 2	·66	1 Au 1○	·19	2 Au 30	·72
5045	2001	1866	13A	·0057	9·9626	3·812	1944	7 Ap 22	·97	2 My 22	·50	4 Je 21	·03	5 Jl 20●	·56	7 Au 19	·09
5046	2002	1867	13A	·2644	28·6014	1·945	1945	6 My 11	·86	1 Je 10○	·39	2 Jl 9●	·93	4 Au 8	·46	5 S 6	·99
5047	2003	1868	13A	·5232	17·7097	25·657	1946	4 My 1	·23	5 My 30○	·76	7 Je 29●	·29	1 Jl 28	·82	3 Au 27	·35
5048	2004	1869	13A	·7820	6·8180	21·814	1947	1 Ap 20	·60	3 My 20●○	·13	4 Je 18	·66	6 Jl 18 / 7 Au 16	·19 / ·72	2 S 15	·25
5049	2005	1870	13A	·0407	25·4589	19·947	1948	7 My 8●	·50	2 Je 7	·03	3 Jl 6	·56	5 Au 5	·09	6 S 3	·62
5050	2006	1871	13A	·2995	14·5652	16·104	1949	4 Ap 27●	·86	6 My 27	·39	7 Je 25	·92	2 Jl 25	·45	3 Au 23	·99
5051	2007	1872	13A	·5582	3·6735	12·262	1950	2 Ap 17	·23	3 My 16	·76	5 Je 15 / 6 Jl 14	·29 / ·82	1 Au 13	·35	2 S 11●○	·88
5052	2008	1873	13A	·8170	22·3124	10·395	1951	1 My 6	·13	2 Je 4	·66	4 Jl 4	·19	5 Au 2	·72	7 S 1●	·25
5053	2009	1874	13A	·0757	11·4207	6·552	1952	5 Ap 24	·49	7 My 24	·03	1 Je 22	·56	3 Jl 22○	·09	4 Au 20●	·62
5054	2010	1875	13A	·3345	0·5290	2·709	1953	2 Ap 13 / 4 My 13	·86 / ·39	5 Je 11	·92	7 Jl 11●○	·45	1 Au 9	·98	3 S 8	·51
5055	2011	1876	13A	·5933	19·1679	0·843	1954	1 My 2	·76	3 Je 1	·29	4 Je 30●○	·82	6 Jl 30	·35	7 Au 28	·88
5056	2012	1877	13A	·8520	8·2762	24·554	1955	6 Ap 22	·13	7 My 21	·66	2 Je 20●	·19	3 Jl 19	·72	5 Au 18 / 8 S 16	·25 / ·78
5057	2013	1878	13A	·1108	26·9151	22·688	1956	5 My 10○	·02	6 Je 8	·55	1 Jl 8	·09	2 Au 6	·62	4 S 5	·15
5058	2014	1879	13A	·3695	16·0234	18·845	1957	2 Ap 29○	·39	3 My 28	·92	5 Je 27	·45	6 Jl 26	·98	1 Au 25	·51
5059	2015	1880	13A	·6283	5·1317	15·002	1958	6 Ap 18●○	·76	1 My 18	·29	2 Je 16	·82	4 Jl 16 / 5 Au 14	·35 / ·88	7 S 13	·41
5060	2016	1881	13A	·8870	23·7705	13·135	1959	5 My 7	·66	7 Je 6	·19	1 Jl 5	·72	3 Au 4	·25	4 S 2○	·78
5061	2017	1882	13A	·1458	12·8788	9·293	1960	3 Ap 26	·02	4 My 25	·55	6 Je 24	·08	7 Jl 23	·61	2 Au 22○	·15
5062	2018	1883	13A	·4045	1·9871	5·450	1961	7 Ap 15	·39	1 My 14 / 3 Je 13	·92 / ·45	4 Jl 12	·98	6 Au 11●○	·51	1 S 10	·04
5063	2019	1884	13A	·6633	20·6260	3·583	1962	6 My 4	·29	7 Je 2	·82	2 Jl 2	·35	3 Jl 31●	·88	5 Au 30	·41
5064	2020	1885	13A	·9221	9·7343	27·295	1963	3 Ap 23	·65	5 My 23	·19	6 Je 21○	·72	1 Jl 21	·25	2 Au 19	·78
5065	2021	1886	13A	·1808	28·3732	25·429	1964	2 My 11	·55	4 Je 10○	·08	5 Jl 9●	·61	7 Au 8	·14	1 S 6	·67

N B.—For tithis by other siddhāntas add to the above algebraically as follows :—(1) for Ārya siddhānta +·06 ;
(2) for Brahma siddhānta −·11 ; and for Siddhānta Śiromaṇi −·05.

Sūrya siddhānta—*cont.*

	Āśvina.			Kārttika.			Mārgaśīrsha.			A.D.	Pauṣha.			A.D.	Māgha.			Phālguna.			Chaitra.		
	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
	7	S	19	·77	2	O	19	·30	3	N	17	·83		5	D	17	·36	15	6	Jr	15	.89	1	F	14●	·43	2	Mr	15	·96
	6	O	8	·67	1	N	7	·20	2	D	6	·73	16	4	Jr	5○	·26		5	F	3●	·79	7	Mr	4	·32	1	Ap	2	·85
	4	S	27	·04	5	O	26	·57	7	N	25	·10		1	D	24○	·63	17	3	Jr	23●	·16	4	F	21	·69	6	Mr	23	·22
	2	O	15	·93	4	N	14	·47	6	D	14○	·00	18	7	Jr	12	·53		2	F	11	·06	3	Mr	12	·59	5	Ap	11	·12
	7	O	5	·30	1	N	3	·83	3	D	3●	·36	19	4	Jr	1	·89		6	Jr	31	·42	7	Mr	1	·95	2	Mr	31	·49
	4	S	24	·67	6	O	24○	·20	7	N	22●	·73		2	D	22	·26	20	3	Jr	20	·79	5	F	19	·32	6	Mr	19	·85
	3	O	12○	·57	5	N	11●	·10	6	D	10	·63	21	1	Jr	9	·16		2	F	7	·69	4	Mr	9	·22	5	Ap	7●○	·75
	7	O	1●○	·93	2	O	31	·46	3	N	29	·99		5	D	29	·53	22	7	Jr	28	·06	1	F	26	·59	3	Mr	28●	·12
	5	S	21	·30	6	O	20	·83	1	N	19	·36		2	D	18	·89	23	4	Jr	17	·42	5	F	15○	·95	7	Mr	17●	·48
	4	O	10	·20	5	N	8	·73	7	D	8	·26	24	1	Jr	6	·79		3	F	5○	·32	4	Mr	5	·85	6	Ap	4	·38
	1	S	28	·57	3	O	28	·10	4	N	26	·63		6	D	26	·16	25	7	Jr	24●○	·69	2	F	23	·22	3	Mr	24	·75
	5	S	17	·93	7	O	17	·46	1	N	15	·99		3	D	15	·52	26	5	Jr	14●	·05	6	F	12	·59	1	Mr	14	·12
	4	O	6	·83	6	N	5	·36	7	D	4○	·89	27	2	Jr	3	·42										2	Ap	13	·65
	2	S	26	·20	3	O	25	·73	5	N	24○	·26		6	D	23	·79		3	F	1	·95	5	Mr	3	·48	7	Ap	2	·01
	1	O	14	·09	2	N	12●○	·63	4	D	12	·16	28	1	Jr	22	·32		2	F	20	·85	4	Mr	21	·38				
	5	O	3	·46	6	N	1●	·99	1	D	1	·52	29	5	Jr	10	·69		7	F	9	·22	1	Mr	10	·75	3	Ap	9	·28
	2	S	22○	·83	4	O	22	·36	5	N	20	·89		3	D	31	·05	30	4	Jr	29	·58	6	F	28	·11	7	Mr	29○	·65
	1	O	11	·73	3	N	10	·26	4	D	9	·79		7	D	20	·42	31	1	Jr	18	·95	3	F	17	·48	5	Mr	19○	·01
	6	S	30	·09	7	O	29	·62	2	N	28	·15	32	6	Jr	8	·32													
	3	S	19	.46	4	O	18	·99	6	N	17	·52		3	D	27	·69		7	F	6	·85	2	Mr	7○	·38	8	Ap	5	·91
	2	O	8	·36	3	N	6	·89	5	D	6	·42		1	D	17	·05	33	5	Jr	28	·22	6	F	24●	·75	1	Mr	26	·28
	6	S	27	·73	1	O	27	·26	2	N	25	·79	35	6	Jr	4○	·95	34	2	Jr	15○	·58	4	F	14●	·11	5	Mr	15	·64
	5	O	15	·62	7	N	14	·15	1	D	13	·68		4	D	25○	·32		1	F	3	·48	3	Mr	5	·01	4	Ap	3	·54
	2	O	4	·99	4	N	3○	·52	6	D	3●	·05	36	5	Jr	23	·85		5	Jr	23	·85	7	F	22	·38	1	Mr	22	·91
	7	S	24	·36	1	O	23○	·89	3	N	22●	·42	37	3	Jr	12	·21		4	F	10	·75	6	Mr	12	·28	7	Ap	10	·81
	6	O	13○	·25	7	N	11	·79	2	D	11	·32	38	7	Jr	1	·58		2	Jr	31	·11	3	Mr	1	·64	5	Mr	31	·17
	3	O	1●	·62	5	O	31	·15	6	N	29	·68		4	D	21	·95	39	6	Jr	20	·48	1	F	19	·01	2	Mr	20	·54
	7	S	20●	·99	2	O	20	·52	4	N	19	·05	40	3	Jr	9	·85		5	F	8	·88	6	Mr	8	·91	1	Ap	7○	·44
	6	O	9	·89	1	N	8	·42	2	D	7	·95		1	D	29	·21	41	2	Jr	27	·74	4	F	26○	·27	5	Mr	27	·81
	4	S	29	·25	5	O	28	·78	7	N	27	·31		5	D	18	·58	42	7	Jr	17	·11	1	F	15○	·64	3	Mr	17	·17
	1	S	17	·62	3	O	17	·15	4	N	15	·68	43	4	Jr	6	·48		6	F	5●○	·01	7	Mr	6	·54	2	Ap	5	·07
	7	O	6	·52	2	N	5	·05	3	D	4○	·58		1	D	26	·85	44	3	Jr	25●	·38	4	F	23	·91	6	Mr	24	·44
	4	S	25	·82	6	O	25	·41	7	N	23○	·95		6	D	15○	·21	45	7	Jr	13●	·74	2	F	12	·27	3	Mr	13	·80
	3	O	14	·78	5	N	13	·31	6	D	12	·84	46	5	Jr	3	11										5	Ap	12	·83
	1	O	3○	·15	2	N	1●	·68	4	D	1	·21		2	D	23	·48		6	F	1	·64	1	Mr	3	·17	2	Ap	1	·70
	5	S	22○	·52	7	O	22	·05	1	N	20	·58	47	4	Jr	22	·01		5	F	20	·54	7	Mr	22	·07				
	4	O	11	·41	5	N	9	·94	7	D	9	·47	48	1	Jr	11	·37		2	F	9	·90	4	Mr	10	·43	5	Ap	8○	·97
	1	S	30	·78	3	O	30	·31	4	N	28	·84		5	D	30	74	49	7	Jr	29	·27	1	F	27	·80	3	Mr	29○	·33
	6	S	19	·15	7	O	18	·68	2	N	17	·21		3	D	20	·11	50	4	Jr	18	·64	6	F	17	·17	7	Mr	18○	·70
	5	O	8	·05	6	N	6	·58	1	D	6	·11	51	2	Jr	8	·01		3	F	6	·54	5	Mr	8	·07	6	Ap	6	·60
	2	S	27	·41	3	O	26	·94	5	N	25	·47		6	D	28	·37	52	7	Jr	26○	·90	2	F	25●	·43	3	Mr	25	·96
	1	O	16	·31	2	N	14○	·84	4	D	14●	·37		3	D	16	·74	53	5	Jr	15○	·27	6	F	13●	·80	1	Mr	15	·33
	5	O	4	·68	7	N	3○	·21	1	D	2●	·74	54	2	Jr	4○	·64		4	F	3	·17	5	Mr	4	·70	7	Ap	3	·23
	3	S	24	·04	4	O	23●○	·57	6	N	22	·10		7	D	25●	·00	55	1	Jr	23	·53	3	F	22	·07	4	Mr	23	·60
	1	O	12	·94	3	N	11	·47	5	D	11	·00	56	5	Jr	12	·90		7	F	11	·43	1	Mr	11	·96	3	Ap	10	·49
	6	O	2●	·31	7	O	31	·84	2	N	30	·37	57	3	Jr	1	·27		4	Jr	30	·80	6	Mr	1	·33	7	Mr	30	·86
	3	S	20●	·68	5	O	20	·21	6	N	18	·74		7	D	21	·64	58	2	Jr	20	·17	3	F	18	·70	5	Mr	20	·23
	2	O	9	·57	4	N	8	·10	5	D	7	·63	59	6	Jr	9	·53		1	F	8	·06	2	Mr	9○	·59	4	Ap	8	·12
	6	S	28	·94	1	O	28	·47	3	N	27	·00		3	D	29	·90	60	5	Jr	28	·43	6	F	26○	·96	1	Mr	27	·49
	4	S	18	·31	7	N	16	·37	1	D	15○	·90		1	D	18	·27	61	2	Jr	16	·80	4	F	15○	·33	5	Mr	16	·86
	5	O	17	·84									62	7	Jr	6	·17		1	F	4●	·70	3	Mr	6	·23	4	Ap	4	·76
	3	O	6	·21	4	N	4	·74	6	D	4●○	·27		4	D	26○	·58	63	6	Jr	25●	·06	7	F	23	·59	2	Mr	25	·12
																Pausha Kshaya		64	3	Jr	14	·43	4	F	12	·96	6	Mr	13	·49
													65	7	Jr	2	·80		2	F	1	·33	3	Mr	2	·86	1	Ap	12	·02
																											5	Ap	1	·39

Note—From **A.D. 1900** to **A.D. 1999** all eclipses of the sun, visible anywhere in the old world (northern part of eastern hemisphere) are shown. From **1 B.C.** to **A.D. 300** the same observation applies. Between **A.D. 300** and **A.D. 1900** only those eclipses of the sun which are visible in India are entered in this table.

TABLE II.—

Kaliyuga.	Vikrama era.	Śaka era.	Month and day A.D.	Fraction of day.	First new-moon in solar year.	Anomaly of first new-moon.	Christian era.	Vaiśākha. Week-day.	Month.	Day.	Fraction.	Jyeṣṭha. Week-day.	Month.	Day.	Fraction.	Āshāḍha. Week-day.	Month.	Day.	Fraction.	Śrāvaṇa. Week-day.	Month.	Day.	Fraction.	Bhādrapada. Week-day.	Month.	Day.	Fraction.
			Commencement of solar year.				A.D.																				
5066	2022	1887	13A	·4896	17·4815	21·586	**1965**	6	Ap	30	·92	1	My	30○	·45	2	Je	28	·98	4	Jl	28	·51	6	Au	27	·04
5067	2023	1888	13A	·6983	6·5898	17·743	**1966**	4	Ap	20○	·29	5	My	19●	·82	7	Je	18	·35	1 3	Jl Au	17 16	·88 ·41	4	S	14	·94
5068	2024	1889	13A	·9571	25·2287	15·876	**1967**	3	My	9●	·18	4	Je	7	·71	6	Jl	7	·25	7	Au	5	·78	2	S	4	·31
5069	2025	1890	13A	·2158	14·3370	12·031	**1968**	7	Ap	27	·52	4	My	27	·08	3	Je	25	·61	5	Jl	25	·14	6	Au	23	·67
5070	2026	1891	13A	·4746	3·4453	8·191	**1969**	4	Ap	16	·92	6	My	16	·45	7 2	Je Jl	14 14	·98 ·51	4	Au	13	·04	5	S	11	·57
5071	2027	1892	13A	·7334	22·0842	6·324	**1970**	3	My	5	·82	5	Je	4	·35	6	Jl	3	·88	1	Au	2○	·41	2	Au	31	·94
5072	2028	1893	13A	·9921	11·1925	2·481	**1971**	1	Ap	25	·18	2	My	24	·71	4	Je	23	·24	5	Jl	22●○	·77	7	Au	21	·31
5073	2029	1894	13A	·2509	0·3008	26·193	**1972**	5 7	Ap My	13 13	·55 ·08	1	Je	11	·61	3	Jl	11○	·14	4	Au	9	·67	6	S	8	·20
5074	2030	1895	13A	·5096	18·9396	24·326	**1973**	4	My	2	·45	5	My	31	·98	7	Je	30●	·51	2	Jl	30	·04	3	Au	28	·57
5075	2031	1896	13A	·7684	8·0479	20·483	**1974**	1	Ap	21	·81	3	My	21○	·35	4	Je	19	·88	6	Jl	19	·41	7 2	Au S	17 16	·94 ·47
5076	2032	1897	14A	·0271	26·6868	18·617	**1975**	7	My	10●○	·71	2	Je	9	·24	3	Jl	8	·77	5	Au	7	·30	6	S	5	·83
5077	2033	1898	13A	·2859	15·7951	14·774	**1976**	5	Ap	29●○	·08	6	My	28	·61	1	Je	27	·14	2	Jl	26	·67	4	Au	25	·20
5078	2034	1899	13A	·5447	4·9034	10·931	**1977**	2	Ap	18●	·45	3	My	17	·98	5 7	Je Jl	16 16	·51 ·04	1	Au	14	·57	3	S	13○	·10
5079	2035	1900	13A	·8034	23·5423	9·064	**1978**	1	My	7	·34	2	Je	5	·87	4	Jl	5	·41	5	Au	3	·94	7	S	2○	·47
5080	2036	1901	14A	·0622	12·6506	5·222	**1979**	5	Ap	26	·71	7	My	26	·24	1	Je	24	·77	3	Jl	24	·30	4	Au	22○	·83
5081	2037	1902	13A	·3209	1·7589	1·379	**1980**	3	Ap	15	·08	4 6	My Je	14 13	·61 14	7	Jl	12	·67	2	Au	11	·20	3	S	9	·73
5082	2038	1903	13A	·5797	20·3978	27·067	**1981**	1	My	3	·98	3	Je	2	·51	5	Jl	2○	·04	6	Jl	31●	·57	1	Au	30	·10
5083	2039	1904	13A	·8384	9·5061	23·224	**1982**	6	Ap	23	·34	7	My	22	·87	2	Je	21○	·40	3	Jl	20●	·93	5	Au	19	·47
5084	2040	1905	14A	·0972	28·1450	21·357	**1983**	5	My	12	·24	6	Je	10●○	·77	1	Jl	10	·30	2	Au	8	·83	4	S	7	·36
5085	2041	1906	13A	·3559	17·2538	17·514	**1984**	2	Ap	30	·61	4	My	30●	14	5	Je	28	·67	7	Jl	28	·20	1	Au	26	·73
5086	2042	1907	13A	·6147	6·3616	13·672	**1985**	6	Ap	19○	·97	1	My	19	·51	3	Je	18	·04	4 6	Jl Au	17 16	·57 ·10	7	S	14	·83
5087	2043	1908	13A	8735	25·0004	11·805	**1986**	5	My	8	·87	7	Je	7	·40	1	Jl	6	·93	3	Au	5	·46	4	S	3	·99
5088	2044	1909	14A	·1322	14·1087	7·962	**1987**	3	Ap	28	·24	4	My	27	·77	6	Je	26	·30	7	Jl	25	·83	2	Au	24	·86
5089	2045	1910	13A	·3910	3·2170	4·119	**1988**	7	Ap	16	·61	2 3	My Je	16 14	·14 ·67	5	Jl	14	·20	6	Au	12○	·73	1	S	11●	·26
5090	2046	1911	13A	·6497	21·8559	2·253	**1989**	6	My	5	·50	1	Je	4	·03	2	Jl	3	·57	4	Au	2○	·10	5	Au	31	·63
5091	2047	1912	13A	·9085	10·9642	25·965	**1990**	3	Ap	24	·87	5	My	24	·40	6	Je	22	·93	1	Jl	22●○	·46	2	Au	20	·99
5092	2048	1913	14A	·1672	0·0725	22·122	**1991**	1 2	Ap My	14 13	·24 ·77	4	Je	12	·30	5	Jl	11	·83	7	Au	10	·36	1	S	8	·89
5093	2049	1914	13A	·4260	18·7114	20·255	**1992**	7	My	2	·14	1	My	31○	·67	3	Je	30	·20	4	Jl	29	·73	6	Au	28	·26
5094	2050	1915	13A	·6848	7·8197	16·412	**1993**	4	Ap	21	·50	6	My	21●○	·03	7	Je	19	·56	2	Jl	19	·09	3 5	Au S	17 16	·63 ·16
5095	2051	1916	13A	·9435	26·4586	14·546	**1994**	3	My	10●○	·40	4	Je	8	·93	6	Jl	8	·46	7	Au	6	·99	2	S	5	·52
5096	2052	1917	14A	·2023	15·5669	10·703	**1995**	7	Ap	29●	·77	2	My	29	·30	3	Je	27	·83	5	Jl	27	·36	6	Au	25	·89
5097	2053	1918	13A	·4610	4·6752	6·860	**1996**	5	Ap	18	·13	6	My	17	·67	1 2	Je Jl	16 15	·20 ·73	4	Au	14	·26	5	S	12○	·79
5098	2054	1919	13A	·7198	28·3141	4·998	**1997**	4	My	7	·03	5	Je	5	·56	7	Jl	5	·09	1	Au	3	·62	3	S	2○	·15
5099	2055	1920	13A	·9785	12·4224	1·151	**1998**	1	Ap	26	40	2	My	25	·93	4	Je	24	·46	5	Jl	23	·99	7	Au	22●	·52
5100	2056	1921	14A	·2373	1·5807	24·862	**1999**	5	Ap	15	·77	7 1	My Je	15 13	·30 ·83	3	Jl	13○	·36	4	Au	11●	·89	6	S	10	·42

N.B.—For tithis by other siddhāntas add to the above algebraically as follows:—

Sūrya siddhānta.—*cont.*

Āśvina.				Kārttika.				Mārgaśirsha.				A.D.	Pausha.				A.D.	Māgha.				Phālguna.				Chaitra.			
Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.		Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.	Week-day.	Month.	Day.	Fraction.
7	S	25	·57	2	O	25	·10	3	N	23●	·63		5	D	23	·16	66	6	Jr	21	·69	1	F	20	·28	2	Mr	21	·76
6	O	14○	·47	1	N	13●	·00	2	D	12	·53	67	4	Jr	11	·06		5	F	9	·59	7	Mr	11	·12	1	Ap	9○	·65
3	O	3○	·84	5	N	2	·37	6	D	1	·90		1	D	31	·43	68	2	Jr	29	·96	4	F	28	·49	6	Mr	29○	·02
1	S	22○	·20	2	O	21	·73	4	N	20	·27		5	D	19	·80	69	7	Jr	18	·33	1	F	16	·86	3	Mr	18●	·39
7	O	11	·10	1	N	9	·63	3	D	9	·16	70	4	Jr	7	·69		6	F	6○	·22	7	Mr	7●	·75	2	Ap	6	·29
4	S	30	·47	6	O	30	·00	7	N	28	·53		2	D	28	·06	71	3	Jr	26○	·59	5	F	25●	·12	6	Mr	26	·65
1	S	19	·84	3	O	19	·37	4	N	17	·90		6	D	17	·43	72	7	Jr	15○	·96	2	F	14	·49	4	Mr	15	·02
7	O	7	·73	2	N	6	·26	3	D	5	·79	73	5	Jr	4●	·33		6	F	2	·86	1	Mr	4	·39	2	Ap	2	·92
5	S	27	·10	6	O	26	·63	1	N	25○	·16		2	D	24●	·69	74	4	Jr	23	·23	5	F	21	·75	7	Mr	23	·28
4	O	16	·00	5	N	14○	·53	7	D	14●	·06	75	1	Jr	12	·59		8	F	11	·12	4	Mr	12	·65	6	Ap	11	·18
1	O	5	·37	2	N	3○	·90	4	D	3	·43	76	5	Jr	1	·96		7	Jr	31	·49	2	Mr	1	·02	3	Mr	30	·55
5	S	23	·73	7	O	23●	·26	1	N	21	·79		3	D	21	·32	77	4	Jr	19	·85	6	F	18	·39	7	Mr	19○	·92
4	O	12	·63	6	N	11	·16	7	D	10	·69	78	2	Jr	9	·22		3	F	7	·75	5	Mr	9○	·28	6	Ap	7	·81
2	O	2●	·00	3	O	31	·53	5	N	30	·06		6	D	29	·59	79	1	Jr	28	·12	2	F	26●○	·65	4	Mr	28	·18
6	S	21	·36	7	O	20	·89	2	N	19	·43		3	D	18	·96	80	5	Jr	17	·49	7	F	16●	·02	1	Mr	16	·55
5	O	9	·26	6	N	7	·79	1	D	7	·32	81	2	Jr	5	·85		4	F	4	·38	5	Mr	5	·91	7	Ap	4	·45
2	S	28	·63	4	O	28	·16	5	N	26	·69		7	D	26○	·22	82	1	Jr	24	·75	3	F	23	·28	4	Mr	24	·81
{7	S	18	·00																			Māgha	7	F	12	·65				
{1	O	17	·53	3	N	16	·06	4	D	15●○	·59	83	6	Jr	14	·12						Kshaya	2	Mr	14	·18	3	Ap	12	·71
5	O	6	·89	7	N	5	·42	1	D	4●	·95	84	3	Jr	3	·49		5	F	2	·02	6	Mr	2	·55	1	Ap	1	·08
3	S	25	·26	4	O	24	·79	6	N	23	·82		7	D	22	·85	85	2	Jr	21	·38	3	F	19	·91	5	Mr	21	·44
2	O	14○	·16	3	N	12●	·69	5	D	12	·22	86	6	Jr	10	·75		1	F	9	·28	2	Mr	10	·81	4	Ap	9○	·34
6	O	3○	·53	1	N	2	·06	2	D	1	·59		4	D	31	·12	87	5	Jr	29	·65	7	F	28	·18	1	Mr	29●	·71
3	S	22●	·89	5	O	22	·42	6	N	20	·95		1	D	20	·48	88	3	Jr	19	·01	4	F	17	·55	6	Mr	18●	·08
2	O	10	·79	4	N	9	·32	5	D	8	·85	89	7	Jr	7	·38		1	F	5○	·91	3	Mr	7	·44	4	Ap	5	·97
7	S	30	·16	1	O	29	·69	3	N	28	·23		4	D	27	·75	90	6	Jr	26○	·28	7	F	24	·81	2	Mr	26	·34
4	S	19	·53	6	O	19	·05	7	N	17	·59		2	D	17	·12	91	3	Jr	15○	·65	5	F	14	·18	6	Mr	15	·71
3	O	8	·42	4	N	6	·95	6	D	6○	·48	92	1	Jr	5	·01		2	F	3	·54	4	Mr	4	·07	5	Ap	2	·61
7	S	26	·79	2	O	26	·32	3	N	24○	·85		5	D	24●	·38	93	6	Jr	22	·91	1	F	21	·44	2	Mr	22	·97
6	O	15	·69	1	N	14○	·22	2	D	13	·75	94	4	Jr	12	·28		5	F	10	·81	7	Mr	12	·34	1	Ap	10	·87
4	O	5	·05	5	N	3●	·58	7	D	3	·11	95	1	Jr	1	·65		3	Jr	31	·18	4	Mr	1	·71	6	Mr	31○	·24
1	S	24	·42	2	O	23●	·95	4	N	22	·48		6	D	22	·01	96	7	Jr	20	·54	2	F	19	·07	3	Mr	19○	·60
7	O	12●	·32	1	N	10	·85	3	D	10	·38	97	4	Jr	8	·91		6	F	7	·44	7	Mr	8●	·97	2	Ap	7	·50
4	O	1	·69	6	O	31	·22	7	N	29	·75		2	D	29	·28	98	3	Jr	27	·81	5	F	26●	·34	6	Mr	27	·87
2	S	21	·05	3	O	20	·58	5	N	19	·11		6	D	18	·64	99	1	Jr	17	·17	2	F	15●	·71	4	Mr	17	·24
7	O	9	·95	2	N	8	·48	4	D	8	·01	20	5	Jr	6○	·54	00	7	F	5	·07	1	Mr	5	·60	3	Ap	4	·13

(1) for Ārya siddhānta +·07; (2) for Brahma siddhānta −·12; and (3) for Siddhānta Śiromaṇi −·05.

TABLE III.—Sunrise from 8° to 12° N. latitude.

Day of solar year.	Lat. 8° Long. +300″ =+ ·003 of day.			Lat. 9° Long. +852″ =+ ·010 of day.			Lat. 10° Long. +564″ =·007 of day.			Lat. 11° Long. +816″ =·009 of day.			Lat. 12° Long. +212″ =+ ·002 of day.		
	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Trivandrum.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Rameswaram**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Madura.**	Eqn. of time in seconds.	☉'s trop long. in seconds.	Total correctn. as fraction of a day. **Tanjore.**	**Eng. date.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Maisur.**
			A.D. 1000–1400.			**A.D. 1000–1400.**			**A.D. 1000–1400.**			**A.D. 1000–1400.**				**A.D. 1000–1400.**
1	—447	+31	+·003	—443	+32	+·009	—439	+34	+·006	—435	+36	+·009	**25** March.	—431	+38	+·003
2	445	61	...	441	65	...	437	68	...	433	72	+·010	**26**	429	75	...
3	443	92	...	439	97	...	435	102	+·007	431	108	...	**27**	428	113	+·004
4	440	123	...	436	130	+·010	433	136	...	430	144	...	**28**	426	150	...
5	438	153	...	434	162	...	431	170	...	428	179	...	**29**	424	188	...
6	436	184	+·004	432	194	+·011	429	205	+·008	426	215	...	**30**	422	226	+·005
7	434	215	+·005	430	227	...	427	239	...	421	251	+·012	**31**	420	263	...
8	433	245	...	429	259	...	425	273	+·009	421	287	...	**1**	418	301	+·006
9	429	276	+·006	425	292	+·012	422	307	...	419	323	+·013	**2**	415	338	...
10	428	307	...	424	324	...	420	341	+·010	416	359	...	**3**	413	376	+·007
11	425	337	...	421	356	...	417	375	...	413	395	...	**4**	410	414	...
12	421	368	...	417	389	+·013	414	409	...	411	431	...	**5**	407	451	...
13	418	399	+·007	414	421	...	411	443	...	408	467	+·015	**6**	404	489	...
14	415	429	...	411	454	...	408	477	...	405	503	...	**7**	401	526	+·009
15	413	460	...	409	486	...	405	511	...	401	538	...	**8**	398	564	...
16	409	491	+·008	405	518	...	402	546	+·012	398	574	...	**9**	395	602	...
17	405	521	...	401	551	...	398	580	...	395	610	+·016	**10**	391	639	...
18	402	552	...	398	583	+·016	395	614	...	391	646	...	**11**	388	678	+·010
19	398	583	+·009	394	616	...	391	648	...	388	682	...	**12**	384	715	...
20	394	613	...	390	648	...	387	682	...	384	718	...	**13**	381	753	...
21	390	644	...	386	680	...	383	716	+·014	380	754	...	**14** April	377	791	...
22	387	675	+·010	382	713	...	379	750	...	376	790	+·018	**15**	373	828	...
23	384	705	...	379	745	+·017	375	784	...	372	826	...	**16**	371	867	+·012
24	381	736	...	377	778	...	373	818	...	370	862	...	**17**	369	903	...
25	378	767	+·011	374	810	...	370	852	...	368	897	...	**18**	367	941	...
26	375	797	..	372	842	...	368	887	+·015	366	933	+·019	**19**	365	979	...
27	372	828	...	369	875	..	365	921	...	364	969	...	**20**	363	1016	+·013
28	369	859	...	367	907	...	363	955	...	362	1005	...	**21**	360	1053	...
29	366	889	...	364	940	+·018	360	989	...	359	1041	...	**22**	358	1091	...
30	363	920	...	362	972	...	358	1024	...	357	1076	...	**23**	356	1128	...
31	360	931	+·012	360	984	...	356	1038	+·016	354	1091	+·020	**24**	353	1144	...
32	357	941	...	357	996	...	354	1052	...	352	1107	...	**25**	351	1161	+·014
33	354	952	...	355	1009	...	352	1065	...	350	1122	...	**26**	348	1177	...
34	351	963	..	353	1021	...	350	1079	...	348	1138	...	**27**	346	1194	...
35	348	973	...	350	1033	+·020	348	1093	...	346	1153	...	**28**	344	1210	...
36	346	984	...	344	1045	...	342	1107	+·018	340	1168	+·021	**29**	338	1227	+·015
37	340	995	+·013	338	1058	...	336	1121	...	334	1184	...	**30**	332	1243	...
38	334	1006	..	332	1070	...	330	1134	...	328	1199	...	**1**	326	1260	...
39	328	1016	...	326	1082	...	324	1148	...	322	1215	...	**2**	320	1276	...
40	321	1027	...	319	1095	+·021	317	1162	...	315	1230	+·022	**3**	313	1293	+·016
41	315	1038	...	313	1107	...	311	1176	...	309	1245	...	**4**	307	1309	...
42	308	1048	...	306	1119	...	304	1190	...	302	1261	...	**5**	300	1326	...
43	301	1059	...	299	1131	...	297	1203	...	295	1276	...	**6**	294	1342	...
44	295	1070	...	293	1144	...	291	1217	+·020	289	1282	...	**7**	287	1359	...
45	288	1081	...	286	1156	...	284	1231	+·019	282	1307	...	**8**	280	1375	...
46	281	1091	...	279	1168	...	277	1245	...	275	1322	...	**9**	274	1392	...
47	274	1102	...	272	1180	+·022	270	1259	...	268	1338	+·024	**10**	267	1408	...
48	267	1113	...	265	1193	...	263	1272	...	261	1353	...	**11**	260	1425	...
49	260	1123	...	258	1205	...	256	1286	...	254	1369	...	**12** May.	253	1441	+·018
50	252	1134	...	250	1217	..	248	1300	...	247	1384	...	**13**	245	1458	...
51	245	1145	...	243	1229	...	241	1314	...	240	1399	...	**14**	238	1474	...
52	238	1156	...	236	1242	...	234	1328	...	232	1415	...	**15**	231	1491	...
53	230	1166	...	228	1254	...	226	1341	...	225	1430	...	**16**	223	1507	...
54	223	1177	+·014	221	1266	...	219	1355	...	217	1446	...	**17**	216	1524	...
55	215	1188	...	213	1278	...	211	1369	...	210	1461	...	**18**	208	1540	...
56	208	1198	...	206	1291	...	204	1383	...	202	1476	...	**19**	201	1557	...
57	199	1209	...	197	1303	...	195	1397	...	194	1492	...	**20**	193	1573	...
58	194	1220	...	192	1315	...	190	1410	...	190	1507	...	**21**	189	1590	...
59	189	1231	...	187	1327	...	186	1424	...	186	1523	...	**22**	185	1606	...
60	184	1241	...	182	1340	...	182	1438	...	182	1528	...	**23**	181	1623	...
61	179	1252	...	178	1352	...	178	1452	...	178	1552	...	**24**	177	1640	...
62	174	1239	...	174	1339	+·021	174	1440	...	174	1540	+·023	**25**	174	1629	...

TABLE III.—Sunrise from 8° to 12° N. latitude—*cont.*

Day of solar year.	Lat. 8° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +800″ =+·003 of day. Total correctn. as fraction of a day. Trivandrum.	Lat. 9° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +852″ =+·010 of day. Total correctn. as fraction of a day. Ramesvaram	Lat. 10° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +564″ =+ ·007 of day. Total correctn. as fraction of a day. Madura.	Lat. 11° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +816″ =+ ·009 of day. Total correctn. as fraction of a day. Tanjore.	Eng. date.	Lat. 12° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +212″ =+ ·002 of day. Total correctn. as fraction of a day. Maisur.
			A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.				A.D. 1000—1400.
63	−165	+1226	+·014	−165	+1327	+·021	−165	+1427	+·019	−165	+1528	+·023	May 26	−165	+1617	+·018
64	156	1214	...	156	1314	...	156	1415	...	156	1516	...	27	156	1606	...
65	147	1201	...	147	1302	...	147	1402	...	147	1504	...	28	147	1595	..
66	138	1188	...	138	1289	...	138	1390	...	138	1492	...	29	138	1583	...
67	129	1176	...	129	1277	...	129	1378	...	129	1481	...	30	128	1572	...
68	120	1163		120	1264	...	120	1365	...	119	1469	...	31	119	1561	...
69	110	1150	...	110	1252	...	110	1353	...	110	1459	...	1	110	1550	+·017
70	101	1137	...	101	1239	...	101	1340	...	101	1445	...	2	100	1538	...
71	91	1125	+·013	91	1227	...	91	1328	...	91	1433	...	3	91	1527	...
72	82	1112	...	82	1214	...	82	1316	...	82	1421	...	4	81	1516	...
73	72	1099	...	72	1202	...	72	1303	...	72	1409	...	5	72	1504	...
74	63	1086	...	63	1189	...	63	1291	...	63	1397	...	6	62	1493	...
75	54	1074	...	54	1176	...	54	1278	...	54	1385	...	7	54	1482	...
76	43	1061	...	43	1164	...	43	1266	...	43	1378	...	8	43	1470	...
77	34	1048	...	34	1151	...	34	1254	...	34	1362	...	9	34	1459	...
78	25	1035	...	25	1139	...	25	1241	...	25	1350	...	10	24	1448	...
79	15	1023	...	15	1126	...	15	1229	...	15	1338	...	11	15	1437	...
80	5	1010	...	5	1114	...	5	1216	...	5	1326	...	12	5	1425	...
81	+4	997	...	+4	1101	...	+4	1204	+·018	+4	1314	...	13	+4	1414	...
82	14	985	...	14	1089	...	14	1192	...	14	1302	+·022	14	14	1403	...
83	23	972	...	23	1076	...	23	1179	...	23	1290	...	June 15	23	1391	...
84	33	959	...	33	1064	...	33	1167	...	33	1278	...	16	33	1380	...
85	43	946	...	43	1051	...	43	1154	...	43	1266	...	17	43	1369	...
86	52	934	...	52	1039	...	52	1142	...	52	1254	...	18	52	1357	...
87	61	921	...	61	1026	...	61	1130	...	61	1243	...	19	61	1346	...
88	71	908	...	71	1014	...	71	1117	...	71	1231	...	20	71	1335	...
89	81	895	...	81	1001	+·020	81	1105	...	81	1219	+·021	21	81	1324	+·016
90	90	883	...	90	988	...	90	1092	...	90	1207	...	22	90	1312	...
91	104	870	...	104	976	...	104	1080	...	104	1196	...	23	104	1300	...
92	114	847	+·012	114	953	...	114	1057	...	114	1173	...	24	114	1276	...
93	124	825	...	124	931	...	124	1034	...	124	1149	...	25	124	1252	...
94	133	802	...	133	908	...	133	1012	+·017	134	1126	...	26	134	1228	...
95	143	780	...	143	885	+·018	143	989	...	143	1103	...	27	144	1204	...
96	153	757	...	153	862	...	153	966	...	153	1079	...	28	153	1180	+·015
97	162	735	...	162	840	...	162	943	...	163	1056	...	29	163	1157	...
98	172	712	+·011	172	817	...	172	920	...	172	1033	...	30	173	1133	...
99	182	690	...	182	794	...	182	898	...	182	1010	...	July 1	182	1109	...
100	191	667	...	191	772	...	191	875	...	191	986	...	2	191	1085	...
101	200	645	...	200	749	...	200	852	+·016	200	963	...	3	201	1061	...
102	209	622	...	209	726	+·017	209	829	...	210	940	+·020	4	210	1037	+·014
103	218	600	...	218	703	...	218	806	...	219	916	...	5	219	1013	...
104	228	577	...	228	681	...	228	784	...	228	893	...	6	229	989	...
105	237	555	+·010	237	658	...	237	761	...	237	870	...	7	238	965	...
106	246	532	...	246	635	...	246	738	...	246	846	...	8	247	941	...
107	253	510	...	253	613	...	254	715	...	255	823	...	9	256	918	...
108	261	487	...	262	590	...	263	692	...	264	800	...	10	265	894	...
109	271	465	...	272	567	...	272	670	...	273	777	...	11	273	870	...
110	280	442	...	280	544	...	281	647	...	281	753	...	12	282	846	...
111	288	420	...	289	522	...	289	624	...	290	730	...	13	290	822	...
112	297	397	...	297	499	...	298	601	...	298	707	...	14	299	798	...
113	306	375	+·009	306	476	...	306	578	...	307	683	...	15	307	774	+·012
114	315	352	...	315	454	...	315	556	...	316	660	...	16	316	750	...
115	323	330	...	323	431	...	323	533	...	324	637	+·018	July 17	324	726	...
116	331	307	...	331	408	...	331	510	...	332	613	...	18	332	702	...
117	338	285	...	339	385	...	339	487	...	339	590	...	19	340	679	...
118	347	262	...	347	363	...	347	464	+·014	348	567	...	20	348	655	...
119	353	239	...	354	340	...	354	442	...	355	544	...	21	356	631	...
120	356	217	...	357	317	...	358	419	...	359	520	...	22	360	607	...
121	359	194	...	360	295	...	362	396	...	363	497	...	23	364	583	...
122	362	172	...	363	272	...	366	372	...	367	472	...	24	369	560	...
123	365	162	...	367	261	+·015	369	359	...	371	457	...	25	374	544	+·011
124	372	152	...	374	249	...	376	346	...	379	443	...	26	380	529	...
125	379	143	...	381	238	...	383	333	...	385	428	+·017	27	387	513	...

TABLE III.—Sunrise from 8° to 12° N. latitude—*cont.*

Day of solar year.	Lat. 8°	Long. +300″ = +·003 of day.	Lat. 9°	Long. +852″ = +·010 of day.	Lat. 10°	Long. +564″ = +·007 of day.	Lat. 11°	Long. +816″ = +·009 of day.	Lat. 12°	Long. +212″ = +·002 of day.
	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Trivandrum.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Rameswaram**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Madura.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Tanjore.**		Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Maisur.**
			A.D. 1000—1400.			**A.D.** 1000—1400.			**A.D.** 1000—1400.			**A.D.** 1000—1400.	**Eng. date.**			**A.D.** 1000—1400.
126	+385	+133	+·009	+387	+227	+·015	+389	+320	+·014	+392	+414	+·017	**28** July.	+394	+497	+·011
127	390	123	...	393	215	...	396	307	...	399	399	...	**29**	401	481	...
128	396	114	...	399	204	...	402	295	...	405	385	...	**30**	407	466	...
129	405	104	...	407	193	...	409	282	...	411	370	...	**31**	413	450	...
130	409	94	...	412	181	...	415	269	...	418	356	...	**1**	420	434	...
131	415	84	...	418	170	...	421	256	...	424	341	...	**2**	426	419	...
132	421	75	...	424	159	...	427	243	...	430	327	...	**3**	432	403	+·010
133	427	65	...	430	147	...	433	230	+·013	436	312	...	**4**	438	387	...
134	434	55	...	437	136	...	439	217	...	441	298	...	**5**	444	372	...
135	438	45	...	441	125	...	444	204	...	447	288	...	**6**	449	356	...
136	444	36	...	447	113	...	450	191	...	453	269	...	**7**	455	340	...
137	449	26	...	452	102	...	455	178	...	458	254	...	**8**	460	324	...
138	454	16	...	457	91	...	460	166	...	463	240	...	**9**	465	309	...
139	461	6	...	464	79	...	466	153	...	468	225	...	**10**	471	293	...
140	464	0	...	467	68	...	470	140	...	473	211	...	**11**	475	277	...
141	469	0	...	472	57	...	475	127	...	478	196	...	**12**	480	262	...
142	474	0	...	477	45	...	480	114	...	483	182	...	**13**	485	246	...
143	478	0	...	481	34	...	484	101	...	487	167	...	**14**	490	230	...
144	483	0	...	486	23	...	489	88	...	490	153	...	**15**	494	215	...
145	484	0	...	487	11	...	490	75	...	492	138	...	**16**	497	199	...
146	486	0	...	488	0	...	491	62	...	494	124	...	**17** August.	500	183	...
147	487	0	...	490	0	...	493	49	...	495	109	...	**18**	502	167	...
148	489	0	...	491	0	...	494	37	...	496	95	...	**19**	504	152	...
149	490	0	...	492	0	...	495	24	...	497	80	...	**20**	506	136	...
150	491	0	...	494	0	...	496	11	...	499	66	...	**21**	507	120	...
151	492	0	...	495	0	...	498	0	...	500	51	...	**22**	508	105	...
152	494	0	...	496	0	...	499	0	...	501	36	...	**23**	509	88	...
153	495	0	...	497	0	...	500	0	...	502	35	...	**24**	510	85	...
154	496	0	...	498	0	...	501	0	...	503	34	...	**25**	511	82	...
155	498	0	...	499	0	...	502	0	...	504	32	...	**26**	512	80	...
156	500	0	...	500	0	...	503	0	...	506	31	...	**27**	513	77	...
157	501	0	...	501	0	...	504	0	...	508	30	...	**28**	514	74	...
158	502	0	...	503	0	...	506	0	...	510	29	...	**29**	515	71	...
159	503	0	...	505	0	...	508	0	...	512	28	...	**30**	516	68	...
160	504	0	...	507	0	...	510	0	...	514	26	...	**31**	518	66	...
161	505	0	...	509	0	...	512	0	...	515	25	...	**1**	519	63	...
162	506	0	...	510	0	...	513	0	...	517	24	...	**2**	520	60	...
163	508	0	...	512	0	...	514	0	...	518	28	...	**3**	522	57	+·008
164	509	0	...	513	0	...	516	0	...	520	22	...	**4**	524	54	...
165	510	0	...	514	0	...	517	0	...	521	20	...	**5**	525	52	...
166	511	0	...	515	0	...	517	0	...	521	19	...	**6**	525	49	...
167	512	0	...	515	0	...	519	0	...	522	18	...	**7**	526	46	...
168	513	0	...	516	0	...	519	0	...	523	17	...	**8**	527	43	...
169	513	0	...	516	0	...	520	0	...	524	16	...	**9**	527	40	...
170	513	0	...	516	0	...	520	0	...	524	14	...	**10**	528	38	...
171	514	0	...	517	0	...	521	0	...	524	13	...	**11**	528	35	...
172	515	0	...	518	0	...	521	0	...	525	12	...	**12**	528	32	...
173	515	0	...	518	0	...	521	0	...	524	11	...	**13**	528	29	...
174	514	0	...	517	0	...	520	0	...	524	10	...	**14**	528	26	...
175	513	0	...	516	0	...	520	0	...	524	8	...	**15**	527	24	...
176	512	0	...	516	0	...	520	0	...	523	7	...	**16** September.	527	21	...
177	511	0	...	515	0	...	519	0	...	523	6	...	**17**	526	18	...
178	510	0	...	514	0	...	518	0	...	522	5	...	**18**	525	15	...
179	509	0	...	513	0	...	517	0	...	521	4	...	**19**	525	12	...
180	508	0	...	512	0	...	516	0	+·012	520	2	...	**20**	524	10	...
181	507	0	...	511	0	...	514	0	...	518	1	...	**21**	522	7	...
182	506	0	...	510	0	...	513	0	...	517	0	...	**22**	521	4	...
183	505	0	...	509	0	...	512	0	...	515	0	...	**23**	519	0	...
184	504	0	...	508	0	...	511	0	...	514	−1	...	**24**	518	−3	...
185	503	0	...	506	0	...	509	0	...	512	2	...	**25**	516	6	...
186	501	0	...	504	0	...	507	0	...	510	4	...	**26**	514	9	...

TABLE III.—Sunrise from 8° to 12° N. latitude—*cont.*

Day of solar year.	Lat. 8° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. +·300″ =+ ·003 of day. Total correctn. as fraction of a day. Trivandrum.	Lat. 9° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. +852″ =+ ·010 of day. Total correctn. as fraction of a day. Rameswaram	Lat. 10° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. +564″ =+ ·007 of day. Total correctn. as fraction of a day. Madura.	Lat. 11° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. +816″ =+ ·009 of day. Total correctn. as fraction of a day. Tanjore.	Eng. date.	Lat. 12° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. + 212″ =+ ·002 of day. Total correctn. as fraction of a day. Maisur.
	A.D. 1000–1400.					A.D. 1000–1400.			A.D. 1000–1400.			A.D. 1000–1400.				A.L. 1000–1400.
187	+499	+0	+·009	+502	+0	+·015	+505	+0	+·013	+508	−5	+·016	27 Sep.	+512	−12	+·008
188	497	0	...	500	0	...	503	0	...	506	6	...	28	510	14	...
189	494	0	...	497	0	...	500	0	...	503	7	...	29	507	17	+·007
190	491	0	...	494	0	...	497	0	...	500	8	...	30	504	20	...
191	488	0	...	491	0	...	494	0	...	497	10	...	1	501	23	...
192	485	0	...	488	0	...	491	0	...	494	11	...	2	498	26	...
193	482	0	...	485	0	...	488	0	...	491	12	..	3	495	29	...
194	479	0	...	482	0	...	485	0	...	488	13	...	4	492	32	...
195	476	0	...	479	0	...	482	0	...	485	14	+·015	5	489	35	...
196	473	0	...	476	0	..	479	0	...	482	16	...	6	486	38	..
197	469	0	...	472	0	...	475	0	...	478	17	...	7	482	41	...
198	465	0	...	468	0	...	471	0	+·012	474	18	...	8	478	43	...
199	462	0	...	465	0	...	468	0	...	471	19	+·014	9	475	46	...
200	458	0	...	461	0	...	464	0	...	467	20	...	10	471	49	..
201	454	0	...	457	0	...	460	0	...	463	22	...	11	467	52	+·006
202	450	0	...	453	0	...	456	0	...	459	23	...	12	463	55	...
203	445	0	...	448	0	...	451	0	+·011	454	24	...	13	458	58	...
204	440	0	...	443	0	...	446	0	...	449	25	+·013	14	453	61	...
205	436	0	...	439	0	...	442	0	...	445	26	...	15	449	64	+·005
206	431	0	...	434	0	...	437	0	...	440	28	...	16	444	67	..
207	427	0	...	430	0	...	433	0	...	436	29	...	17	440	70	...
208	422	0	...	425	0	...	428	0	+·010	431	30	+·012	18	435	72	...
209	417	0	...	420	0	+·014	423	0	...	425	31	...	19	429	75	+·004
210	413	0	...	416	0	...	419	0	...	420	32	...	20	424	78	...
211	411	0	...	414	0	...	417	0	...	418	34	...	21	422	81	...
212	409	0	+·008	412	0	...	415	0	...	416	35	...	22	420	84	...
213	407	0	...	410	0	...	413	0	...	414	36	...	23	418	88	...
214	405	0	...	408	0	...	411	0	+·009	412	50	...	24	416	104	...
215	403	0	...	406	0	...	409	−10	...	410	65	...	25	414	120	...
216	397	0	...	400	0	...	403	23	...	406	79	...	26	408	135	...
217	391	0	...	394	0	...	397	36	...	400	94	...	27	402	151	...
218	385	0	...	388	0	...	391	48	...	394	108	+·011	28	396	166	+·003
219	378	0	...	381	0	...	384	61	+·008	387	123	...	29	389	182	...
220	372	0	...	375	−11	+·012	+378	74	...	381	137	...	30	383	198	...
221	365	0	...	368	23	..	371	87	...	374	152	...	31	376	214	..
222	358	0	...	361	34	...	366	100	...	367	166	+·010	1	369	229	+·002
223	351	0	...	354	45	...	357	113	...	360	181	...	2	362	245	...
224	344	0	+·007	347	57	...	350	126	...	353	195	...	3	355	261	...
225	337	0	...	340	68	...	343	139	...	346	210	+·009	4	348	276	+·001
226	330	−6	...	333	79	...	336	152	+·007	339	224	...	5	341	292	...
227	322	16	+·006	325	91	+·011	328	165	...	331	239	...	6	333	308	...
228	315	26	...	318	102	...	321	177	...	324	253	+·008	7	326	323	·000
229	307	36	+·005	310	113	...	313	190	+·006	316	268	...	8	318	339	...
230	299	45	...	302	125	+·010	305	203	...	308	282	...	9	310	355	...
231	291	55	...	294	136	...	297	216	.	300	297	...	10	302	371	−·001
232	283	65	+·004	286	147	...	289	229	+·005	292	311	...	11	294	386	...
233	275	75	...	278	159	+·009	281	242	...	284	326	...	12	286	402	...
234	266	84	...	269	170	...	272	255	...	275	340	+·007	13	277	418	...
235	258	94	+·003	261	181	...	264	268	...	267	355	...	14	269	433	...
236	250	104	...	253	193	...	256	281	...	259	369	+·006	15	261	449	−·002
237	242	114	...	245	204	...	248	294	+·004	251	384	...	16	253	465	...
238	233	123	...	236	215	+·008	239	306	...	242	398	...	17	244	480	...
239	224	133	...	227	227	...	230	319	...	233	413	+·005	18	235	496	−·003
240	216	143	...	219	238	...	222	332	+·003	225	427	...	19	227	512	...
241	207	152	+·002	210	249	+·007	213	345	...	216	442	...	20	218	528	...
242	199	162	...	201	261	...	204	358	...	207	456	+·004	21	209	543	−·004
243	198	172	...	199	272	...	199	372	+·002	199	472	...	22	199	560	...
244	190	194	+·001	190	295	+·006	190	395	...	190	495	...	23	190	584	−·005
245	180	217	...	180	317	...	180	418	.	180	519	+·003	24	180	608	...
246	170	239	·000	170	340	...	170	440	+·001	170	542	...	25	170	632	...

November.

TABLE III.—Sunrise from 8° to 12° N. latitude—*cont.*

Day of solar year.	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Trivandrum.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Rameswaram**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Madura.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Tanjore.**	**Eng. date.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Maisur.**
	Lat. 8°	Long. +300″ = +·003 of day.		**Lat. 9°**	Long. +852″ = +·010 of day.		**Lat. 10°**	Long. +564″ = +·007 of day.		**Lat. 11°**	Long. +816″ = +·009 of day.			**Lat. 12°**	Long. +212″ = +·002 of day.	
	A.D. 1000—1400.			**A.D.** 1000—1400.			**A.D.** 1000—1400.			**A.D.** 1000—1400.				**A.D.** 1000—1400.		
247	+160	−262	−·001	+160	−363	+·005	+160	−463	+·001	+160	−565	+·002	**26**	+160	−656	−·006
248	150	285	...	150	385	...	150	486	·000	150	588	...	**27**	150	679	
249	140	307	...	140	408	+·004	140	509	...	140	612	...	**28**	140	703	−·007
250	130	330	...	130	431	..	130	532	...	130	635	+·001	**29**	130	727	...
251	120	352	...	120	454	...	120	554	−·001	120	658	...	**30**	120	751	...
252	110	375	−·002	110	476	+·003	110	577	...	110	682	·000	**1**	110	775	−·008
253	100	397	...	100	499	...	100	600	−·002	100	705	...	**2**	100	799	...
254	90	420	−·003	90	522	...	90	623	...	90	728	...	**3**	90	823	−·010
255	80	442	...	80	544	+·002	80	646	...	80	752	−·002	**4**	80	847	...
256	70	465	−·004	70	567	...	70	668	...	70	775	...	**5**	70	871	...
257	60	487	...	60	590	...	60	691	−·004	60	798	...	**6**	60	895	...
258	50	510	−·005	50	613	...	50	714	...	50	821	...	**7**	50	918	−·011
259	40	532	...	40	635	·000	40	737	...	40	845	−·003	**8**	40	942	...
260	30	555	..	30	658	...	30	760	...	30	868	...	**9**	30	966	...
261	20	577	...	20	681	...	20	782	−·005	20	891	...	**10**	20	990	...
262	10	600	−·006	10	703	...	10	805	...	10	915	...	**11**	10	1014	−·012
263	0	622	...	0	726	−·001	0	828	...	0	938	−·004	**12**	0	1038	...
264	−10	645	−·007	−10	749	..	−10	851	...	−10	961	...	**13**	−10	1062	...
265	20	667	...	20	772	...	20	874	...	20	985	...	**14**	20	1086	...
266	29	690	−·008	28	794	...	28	896	...	28	1008	...	**15**	28	1110	...
267	38	712	...	37	817	−·002	37	919	...	37	1031	−·006	**16**	37	1134	−·014
268	48	735	...	47	840	...	47	942	−·007	47	1054	...	**17**	47	1157	...
269	59	757	...	57	862	...	57	965	...	57	1078	...	**18**	57	1181	...
270	68	780	...	66	885	−·004	66	988	...	66	1101	...	**19**	66	1205	...
271	78	802	...	77	908	...	77	1010	...	77	1124	−·007	**20**	77	1229	−·015
272	88	825	...	87	931	...	87	1033	−·008	87	1148	...	**21**	87	1253	...
273	98	847	−·009	97	953	...	97	1056	...	97	1171	...	**22**	97	1277	...
274	104	870	...	104	976	...	104	1080	...	104	1196	...	**23**	104	1300	...
275	111	883	...	111	988	...	111	1092	...	111	1208	−·008	**24**	111	1311	−·016
276	119	895	...	118	1001	...	118	1105	...	118	1220	...	**25**	118	1323	...
277	126	908	...	126	1014	...	125	1117	−·010	125	1232	...	**26**	125	1334	...
278	134	921	−·010	133	1026	...	133	1130	...	132	1246	...	**27**	132	1345	...
279	141	934	...	140	1039	−·006	140	1142	...	139	1255	...	**28**	139	1356	...
280	149	946	−·011	148	1051	...	147	1154	...	146	1267	...	**29**	146	1368	−·017
281	156	959	...	155	1064	...	154	1167	...	154	1279	...	**30**	153	1379	...
282	164	972	−·012	162	1076	...	162	1179	...	161	1291	...	**31**	160	1390	...
283	171	985	...	170	1089	...	169	1192	...	168	1303	...	**1**	167	1402	...
284	179	997	...	177	1101	...	176	1204	...	175	1315	...	**2**	174	1413	−·019
285	186	1010	...	184	1114	...	183	1216	...	182	1329	−·010	**3**	181	1424	...
286	194	1023	...	192	1126	...	191	1229	...	189	1339	...	**4**	188	1436	...
287	201	1035	...	199	1139	...	198	1241	...	196	1351	...	**5**	195	1447	
288	209	1048	...	206	1151	...	205	1254	..	204	1363	...	**6**	202	1458	...
289	216	1061	..	214	1164	...	212	1266	...	211	1374	...	**7**	209	1469	...
290	224	1074	...	221	1176	−·008	220	1278	...	218	1386	...	**8**	216	1481	...
291	231	1086	...	228	1189	...	227	1291	...	225	1398	...	**9**	223	1492	...
292	239	1099	...	236	1202	...	234	1303	...	232	1410	...	**10**	230	1503	...
293	246	1112	...	243	1214	...	241	1316	...	239	1422	...	**11**	237	1515	...
294	254	1125	...	250	1227	...	249	1328	...	246	1434	...	**12**	244	1526	−·018
295	261	1137	...	258	1239	...	256	1340	−·012	254	1446	...	**13**	251	1537	...
296	269	1150	...	265	1252	...	263	1353	...	261	1458	...	**14**	258	1549	...
297	276	1163	...	272	1264	...	270	1365	...	268	1470	...	**15**	265	1560	...
298	284	1176	...	280	1277	...	278	1378	...	275	1482	...	**16**	273	1571	...
299	291	1188	...	287	1289	...	285	1390	...	282	1493	...	**17**	281	1582	...
300	299	1201	−·013	294	1302	...	292	1402	...	289	1505	...	**18**	288	1594	...
301	306	1214	...	302	1314	...	299	1415	...	296	1517	...	**19**	295	1605	...
302	314	1226	...	309	1327	...	306	1427	...	304	1529	...	**20**	303	1616	...
303	321	1239	...	316	1339	...	314	1440	...	311	1541	...	**21**	310	1628	...
304	325	1252	...	323	1352	...	321	1452	...	318	1552	...	**22**	317	1640	...
305	328	1241	...	326	1340	...	324	1438	...	321	1537	...	**23**	320	1623	...

Nov. / December. / January.

TABLE III.—Sunrise from 8° to 12° N. latitude—*cont.*

Day of solar year.	Lat. 8° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +300″ = +·003 of day. Total correctn. as fraction of a day. Trivandrum.	Lat. 9° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +852″ = +·010 of day. Total correctn. as fraction of a day. Rāmēswaram	Lat. 10° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +564″ = +·007 of day. Total correctn. as fraction of a day. Madura.	Lat. 11° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +816″ = ·009 of day. Total correctn. as fraction of a day. Tanjore.	Eng. date.	Lat. 12° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +212″ = +·002 of day. Total correctn. as fraction of a day. Maisur.
			A.D. 1000—1400			A.D. 1000—1400			A.D. 1000—1400			A.D. 1000—1400				A.D. 1000—1400
306	−332	−1231	−·013	−330	−1327	−·008	−327	−1424	...	−324	−1521	−·010	24	−323	−1607	−·018
307	335	1220	...	333	1315	...	331	1411	−·011	328	1506	...	25	327	1590	...
308	339	1209	...	334	1303	...	334	1397	...	331	1490	...	26	330	1574	...
309	342	1198	...	340	1291	...	337	1383	...	334	1475	...	27	333	1557	...
310	346	1188	...	344	1278	...	341	1369	...	338	1460	...	28	337	1541	−·017
311	349	1177	...	347	1266	...	344	1355	...	341	1444	...	29	340	1524	...
312	353	1166	...	351	1254	...	347	1342	...	344	1429	...	30	343	1508	...
313	356	1156	...	354	1242	...	351	1328	...	348	1413	−·009	31	347	1491	...
314	360	1145	...	358	1229	...	354	1314	...	351	1398	...	1	350	1475	...
315	363	1134	...	361	1217	...	357	1300	...	354	1383	...	2	353	1458	...
316	367	1123	...	365	1205	−·007	361	1281	...	358	1367	...	3	357	1442	−·016
317	370	1113	...	368	1193	...	364	1273	...	361	1352	...	4	360	1455	...
318	374	1102	−·011	372	1180	...	367	1259	...	364	1336	...	5	363	1409	−·015
319	377	1091	...	375	1168	...	371	1245	...	368	1321	...	6	367	1392	...
320	381	1081	...	379	1156	...	374	1231	...	371	1306	−·008	7	370	1376	...
321	384	1070	...	382	1144	...	377	1217	−·010	374	1290	...	8	373	1359	...
322	388	1059	...	386	1131	−·006	381	1204	...	378	1275	...	9	377	1343	...
323	391	1048	...	389	1119	...	384	1190	...	381	1259	...	10	380	1326	...
324	395	1038	...	393	1107	...	387	1176	−·009	384	1244	...	11	383	1310	...
325	398	1027	...	396	1095	...	391	1162	...	388	1229	−·007	12	387	1293	...
326	402	1016	...	400	1082	...	394	1148	...	391	1213	...	13	390	1277	−·014
327	405	1006	...	403	1070	...	397	1135	...	394	1198	...	14	393	1260	...
328	409	995	−·010	407	1058	−·005	401	1121	...	398	1182	−·006	15	397	1244	...
329	412	984	...	410	1045	...	404	1107	−·008	401	1167	...	16	400	1227	−·013
330	415	973	...	414	1033	...	407	1093	...	404	1152	−·005	17	403	1211	...
331	418	963	−·009	417	1021	−·004	411	1079	...	408	1136	...	18	406	1194	−·012
332	422	962	...	419	1009	...	414	1066	−·007	411	1121	...	19	408	1178	...
333	425	941	...	422	996	...	417	1052	...	414	1105	−·004	20	411	1161	...
334	429	931	−·008	425	984	−·003	421	1038	...	418	1090	...	21	414	1145	−·011
335	432	920	...	428	972	...	424	1024	−·006	420	1076	...	22	417	1128	...
336	432	889	...	428	940	−·002	424	990	...	420	1040	−·003	23	417	1090	−·010
337	433	859	−·007	429	907	...	425	956	...	421	1004	...	24	418	1053	...
338	433	828	...	429	875	...	425	922	−·005	421	968	−·002	25	418	1015	−·009
339	434	797	...	430	842	−·001	426	888	...	422	932	...	26	419	978	...
340	434	766	...	430	810	...	426	854	−·004	422	896	...	27	419	940	...
341	435	736	−·006	431	778	...	427	820	...	423	861	−·001	28	420	902	−·008
342	435	705	...	431	745	·000	427	785	...	423	825	...	1	420	865	...
343	436	675	−·005	432	713	...	428	751	−·003	424	789	·000	2	421	827	−·007
344	436	640	...	432	680	...	428	717	...	424	753	..	3	421	790	...
345	437	613	...	433	648	+·002	429	683	−·002	425	717	+·001	4	422	752	−·006
346	437	583	−·004	433	616	...	429	649	...	425	681	...	5	422	714	...
347	438	552	...	434	583	...	430	615	...	426	645	...	6	423	677	...
348	438	521	...	434	551	...	430	581	−·001	426	609	+·002	7	423	639	−·005
349	439	491	−·003	435	518	...	431	547	...	427	573	...	8	424	602	...
350	439	460	...	435	486	+·003	431	513	·000	427	537	+·003	9	424	564	−·004
351	440	429	−·002	436	454	...	432	479	...	428	502	...	10	425	526	...
352	440	399	...	436	421	...	432	444	...	428	466	...	11	425	489	−·003
353	441	368	...	437	389	+·004	433	410	+·001	429	430	+·004	12	426	451	...
354	441	337	−·001	437	356	...	433	376	...	429	394	...	13	426	414	...
355	442	307	...	438	324	...	434	342	...	430	358	+·005	14	427	376	−·002
356	442	276	...	438	292	+·005	434	308	...	430	322	...	15	427	338	...
357	443	245	·000	439	259	...	435	274	...	431	286	...	16	428	301	−·001
358	443	215	...	439	227	+·006	435	240	+·003	431	250	+·006	17	428	263	...
359	444	184	...	440	194	...	436	206	...	432	214	..	18	429	226	·000
360	444	153	+·001	440	162	...	436	172	...	432	178	+·007	19	429	188	...
361	445	123	...	441	130	+·008	437	138	+·004	433	143	...	20	430	150	...
362	445	92	...	441	97	...	437	103	...	433	107	...	21	430	113	...
363	446	61	...	442	65	...	438	69	+·005	434	71	+·008	22	431	75	...
364	446	31	...	442	32	+·009	438	35	...	434	36		23	431	38	+·001
365	447	0	...	443	0	...	439	0	...	435	0	+·009	24	432	0	...

January. February. March.

TABLE III.—Sunrise from 13° to 17° N. latitude.

Day of solar year.	Lat. 13° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +1072″ = +·012 of day. Total correctn. as fraction of a day. Madras.	Lat. 14° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +1008″ = +·012 of day. Total correctn. as fraction of a day. Nellore.	Lat. 15° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +168″ = +·002 of day. Total correctn. as fraction of a day. Vizianagram.	Lat. 16° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −300″ = −·003 of day. Total correctn. as fraction of a day. Belgaum.	Eng. date.	Lat. 17° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +648″ = +·008 of day. Total correctn as fraction of a day, Hyderabad.
			A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.				A.D. 1000—1400.
1	−428	+39	+·012	−424	+41	+·012	−420	+43	+·003	−417	+45	−·003				
2	426	78	...	422	82	...	418	86	..	415	89	−·002				
3	424	118	+·013	420	123	+·013	416	129	+·004	413	133	−·001				
4	423	157	..	419	164	...	415	172	...	411	178	...				
5	421	196	+·014	417	205	+·014	413	215	+·005	410	222	·000				
6	419	235	...	415	246	...	411	258	..	407	267	...				
7	417	274	+·015	413	287	+·015	409	301	+·006	406	311	+·001				
8	414	314	...	410	328	...	407	344	...	403	351	...				
9	412	351	+·016	406	369	+·016	404	387	...	401	395	+·002				
10	409	388	...	405	410	...	402	430	...	398	440	...				
11	407	428	+·018	403	451	...	399	473	+·007	396	484	+·003				
12	404	467	...	400	492	+·017	396	516	...	393	529	...				
13	401	506	...	397	533	...	394	559	...	391	573	...				
14	398	545	...	394	574	...	391	602	...	387	618	+·004				
15	396	584	...	391	615	+·019	388	645	+·009	384	662	...				
16	392	624	+·020	388	656	...	384	688	...	381	707	...				
17	388	663	...	385	697	...	381	731	...	378	751	..				
18	385	702	...	381	738	...	378	774	+·011	375	796	+·006				
19	382	741	...	378	779	+·021	374	817	+·012	371	840	...				
20	377	780	+·022	374	820	...	370	860	...	367	885	...				
21	374	820	...	370	861	...	367	903	...	364	929	+·008				
22	370	859	...	366	902	...	363	946	+·014	360	974	...				
23	368	898	...	364	942	+·022	361	989	...	358	1019	...				
24	366	937	+·023	362	984	...	359	1032	...	356	1063	...				
25	364	976	...	360	1025	...	357	1075	...	354	1107	+·009				
26	362	1016	...	358	1066	...	355	1118	+·015	352	1152	...				
27	360	1055	...	356	1107	+·024	353	1161	...	350	1196	...				
28	358	1094	...	354	1148	...	351	1204	...	349	1241	+·010				
29	356	1123	...	352	1189	...	349	1247	...	348	1285	...				
30	354	1176	...	350	1232	...	347	1290	+·016	347	1336	...				
31	352	1194	...	348	1251	+·025	346	1313	...	346	1358	...				
32	350	1212	+·024	347	1271	...	345	1334	...	345	1381	+·011				
33	348	1230	...	346	1290	...	344	1354	...	344	1403	...				
34	347	1248	...	345	1309	...	343	1375	+·017	340	1425	...				
35	341	1266	...	339	1328	+·026	337	1396	...	335	1447	+·013				
36	335	1285	+·025	333	1348	...	331	1417	...	329	1470	...				
37	329	1303	...	327	1367	...	325	1438	+·018	323	1492	...				
38	324	1321	...	322	1386	...	320	1458	...	317	1514	+·014				
39	317	1339	...	316	1406	+·027	313	1479	...	311	1537	...				
40	311	1357	+·027	309	1425	...	307	1500	+·019	305	1559	...				
41	305	1375	...	303	1444	...	301	1521	...	299	1581	...				
42	298	1393	...	296	1464	...	294	1542	...	292	1604	...				
43	292	1411	...	290	1483	...	288	1562	...	286	1626	+·015				
44	285	1429	...	283	1502	...	282	1583	...	280	1648	...				
45	278	1447	...	277	1521	...	275	1604	...	273	1670	...				
46	272	1466	...	270	1541	...	268	1625	...	267	1693	...				
47	265	1484	...	263	1560	...	261	1646	...	259	1715	...				
48	258	1502	+·029	256	1579	...	254	1666	...	253	1737	...				
49	251	1520	...	249	1599	...	248	1687	...	246	1760	...				
50	244	1538	...	242	1618	+·028	241	1708	...	239	1782	...				
51	237	1556	...	235	1637	...	234	1729	...	232	1804	...				
52	229	1574	+·030	228	1657	...	226	1750	...	225	1827	...				
53	222	1592	...	220	1676	...	219	1770	+·021	217	1849	...				
54	214	1610	...	213	1695	...	212	1791	...	210	1871	...				
55	207	1628	...	206	1714	...	204	1812	...	203	1893	...				
56	200	1647	...	198	1734	...	197	1833	...	196	1916	...				
57	192	1665	...	190	1753	...	189	1854	...	188	1938	...				
58	188	1683	...	186	1772	...	184	1874	...	183	1960	...				
59	184	1701	...	182	1792	...	180	1895	...	179	1983	...				
60	180	1719	...	178	1811	...	176	1916	...	175	2005	..				
61	176	1736	...	174	1832	...	172	1936	...	171	2028	...				
62	172	1725	...	170	1822	+·029	168	1926	...	167	2019	...				
													March.	25	413	46	+·008
														26	411	93	+·009
														27	409	139	+·010
														28	408	186	+·011
														29	406	232	...
														30	404	278	+·012
														31	402	325	...
														1	399	371	...
														2	397	418	..
														3	395	464	+·013
														4	392	510	...
														5	389	557	+·015
														6	387	603	...
														7	384	650	...
														8	381	696	+·016
														9	378	743	...
														10	374	790	+·018
														11	371	836	+·019
														12	368	883	...
														13	364	929	...
													April.	14	360	973	..
														15	358	1019	+·020
														16	356	1066	...
														17	354	1113	...
														18	352	1159	+·021
														19	350	1206	...
														20	348	1252	...
														21	347	1298	+·023
														22	346	1345	...
														23	345	1392	...
														24	344	1416	..
														25	343	1439	+·024
														26	342	1463	...
														27	338	1487	..
														28	332	1510	...
														29	326	1531	...
														30	321	1558	...
														1	315	1582	+·025
														2	309	1605	...
														3	303	1629	...
														4	297	1653	+·026
														5	290	1676	...
														6	284	1700	...
														7	278	1724	...
														8	271	1747	...
														9	265	1771	+·028
														10	258	1795	...
														11	251	1819	...
													May.	12	244	1842	...
														13	237	1866	...
														14	230	1890	+·030
														15	223	1913	...
														16	216	1937	...
														17	209	1961	...
														18	201	1984	...
														19	194	2008	...
														20	186	2032	...
														21	182	2056	...
														22	178	2079	...
														23	174	2103	...
														24	171	2128	...
														25	167	2120	...

TABLE III.—Sunrise from 13° to 17° N. latitude—*cont.*

Day of solar year.	Lat. 13° Long. +1072″ = +·012 of day.			Lat. 14° Long. +1008″ = +·012 of day.			Lat. 15° Long. +168″ = +·002 of day			Lat. 16° Long. −300″ = −·003 of day.			Eng. date.	Lat. 17° Long. +648″ = +·008 of day.		
	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as faction of a day. **Madras.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Nellore.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Vizianagram**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Belgaum.**		Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day, **Hyderabad.**
			A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.				A.D. 1000—1400.
63	−164	+1714	+·029	−164	+1812	+·029	−164	+1917	+·021	−163	+2010	+·017	26	−163	+2111	+·029
64	155	1704	...	155	1802	...	155	1907	...	154	2001	...	27	154	2103	...
65	146	1693	...	146	1792	...	146	1898	...	145	1992	...	28	145	2094	...
66	137	1682	...	137	1781	...	137	1888	...	136	1983	...	29	136	2086	...
67	128	1671	...	128	1771	...	127	1878	...	126	1975	...	30	127	2078	...
68	119	1660	...	119	1761	...	118	1869	...	118	1966	...	31	118	2069	...
69	109	1650		109	1751	...	109	1859	...	109	1957	...	1	108	2060	...
70	100	1639	...	100	1741	...	100	1850	...	99	1948	...	2	99	2052	...
71	91	1628	...	91	1731	...	90	1840	...	90	1939	...	3	90	2044	...
72	81	1617	...	81	1721	...	81	1830	...	81	1930	...	4	80	2036	...
73	72	1606	...	72	1711	...	71	1821	...	71	1921	...	5	71	2027	...
74	62	1596	...	62	1701	...	62	1811	...	62	1912	...	6	62	2019	...
75	54	1585	...	54	1691	...	54	1802	...	54	1903	...	7	54	2010	..
76	43	1574	...	43	1680	...	43	1792	...	43	1894	...	8	43	2002	...
77	34	1563	...	33	1670	...	33	1782	...	38	1886	...	9	33	1994	...
78	24	1552	+·028	24	1660	...	24	1773	...	24	1877	+·016	10	24	1985	...
79	15	1542	...	15	1650	...	15	1763	...	15	1868	...	11	15	1977	...
80	5	1531	...	5	1640	...	5	1754	..	5	1859	...	12	5	1968	+·028
81	+ 4	1520	...	+ 4	1630	...	+ 4	1744	...	+ 4	1850	...	13	+ 4	1960	...
82	14	1509	...	14	1620	...	14	1734	...	14	1841	...	14	14	1952	...
83	23	1498	...	23	1610	...	23	1725	...	23	1832	...	15	23	1943	...
84	33	1488	...	33	1600	...	33	1715	...	33	1823	...	16	33	1935	...
85	43	1477	...	43	1590	...	42	1706	+·020	42	1814	...	17	42	1926	...
86	52	1466	...	52	1579	...	52	1696	...	52	1805	...	18	51	1918	...
87	61	1455	...	61	1569	+·028	61	1686	...	61	1797	...	19	61	1910	...
88	71	1444	...	71	1559	...	71	1677	..	71	1788	...	20	70	1901	...
89	80	1434	...	80	1549	...	80	1667	...	80	1779		21	80	1893	...
90	90	1423	+·027	89	1539	...	89	1658	+·019	89	1770	+·015	22	89	1884	+·027
91	105	1412	...	105	1528	...	105	1648	...	105	1760	...	23	106	1876	...
92	115	1398	...	115	1503	...	115	1622	...	111	1734	...	24	116	1849	...
93	124	1363	...	125	1478	+·027	125	1597	...	125	1708	...	25	126	1823	...
94	184	1339	...	134	1453	...	135	1571	...	135	1681	...	26	135	1796	...
95	144	1314	...	144	1428	...	144	1546	...	145	1655	+·014	27	145	1769	+·026
96	154	1290	+·026	154	1403	...	154	1520	+·018	155	1629	...	28	155	1742	...
97	168	1266	...	164	1378	...	164	1495	.	164	1603	...	29	165	1716	...
98	178	1241	...	173	1353	...	174	1469	...	174	1577	...	30	174	1689	...
99	183	1217	...	183	1328	+·026	183	1444	...	184	1550	...	1	184	1662	...
100	192	1192	...	192	1303	...	193	1418	...	193	1524	+·013	2	193	1636	+·025
101	201	1168	...	202	1278	...	202	1393	...	202	1498	...	3	203	1609	...
102	210	1144	+·025	211	1253	...	211	1367	+·017	212	1472	..	4	212	1582	...
103	220	1119	...	220	1228	...	221	1342	...	221	1446	...	5	222	1556	...
104	229	1095	...	230	1203	...	230	1316	...	231	1419	...	6	231	1539	...
105	238	1070	...	239	1178	+·024	239	1291	...	240	1393	...	7	240	1502	...
106	247	1046	...	248	1153	...	248	1265	...	249	1367	+·011	8	249	1475	+·024
107	256	1022	...	257	1128	...	257	1240	...	258	1341	...	9	258	1449	...
108	266	997	...	266	1103	...	266	1214	...	267	1315	...	10	267	1422	...
109	274	973	...	274	1078	...	275	1189	+·016	276	1288	...	11	276	1395	...
110	283	948	...	283	1053	...	284	1163	...	285	1262	...	12	285	1369	...
111	291	924	...	292	1028	...	292	1138	...	293	1236	...	13	294	1342	...
112	300	900	+·023	300	1003	...	301	1112	...	301	1210	+·010	14	302	1315	+·022
113	308	875	...	309	978	...	309	1087	...	310	1184	...	15	311	1289	...
114	317	857	...	318	953	+·023	318	1061	...	319	1157	...	16	320	1262	...
115	325	828	...	326	928	...	326	1036	...	327	1131	...	17	328	1235	...
116	333	802	...	334	903	...	334	1010	+·015	335	1105	...	18	336	1208	...
117	341	778	...	342	878	...	342	985	...	343	1079	...	19	344	1182	...
118	349	753	...	350	853	...	351	959	...	352	1053	...	20	352	1155	+·021
119	356	729	...	355	828	...	356	934	...	358	1026	...	21	368	1128	...
120	360	704	...	360	803	...	361	908	...	363	1000	..	22	364	1102	...
121	364	680	+·022	365	778	+·022	366	883	...	369	974	..	23	370	1075	...
122	368	656	...	370	752	...	372	856	+·013	375	948	..	24	377	1048	...
123	375	639	...	377	733	...	379	835	...	382	926	...	25	384	1025	...
124	382	621	...	385	715	...	387	815	...	389	905	+·008	26	391	1002	...
125	389	604	...	391	696	...	394	795	...	396	883	...	27	398	978	...

May. June. July.

TABLE III.—Sunrise from 13° to 17° N. latitude—*cont.*

Day of solar year.	Lat. 13° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +1072″ = +·012 of day. Total correctn. as fraction of a day. Madras.	Lat. 14° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +1008″ = +·012 of day. Total correctn. as fraction of a day. Nellore.	Lat. 15° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +168″ = +·002 of day. Total correctn. as fraction of a day. Vizianagram	Lat. 16° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −300″ = −·003 of day. Total correctn. as fraction of a day. Belgaum.	Eng. Date.	Lat. 17° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +648″ = +·008 of day. Total correctn. as fraction of a day. Hyderabad.
			A.D. 1000— 1400.			A.D. 1000— 1400.			A.D. 1000— 1400.			A.D. 1000— 1400.				A.D. 1000— 1400.
126	+396	+587	+·022	+398	+677	+·022	+401	+775	+·013	+403	+861	+·008				
127	403	569	...	405	658	...	408	754	...	410	839	...				
128	409	552	...	412	640	...	414	734	...	416	818	...				
129	416	535	+·021	418	621	+·021	421	714	+·012	423	796	...				
130	422	518	...	425	602	...	427	694	...	430	774	+·007				
131	428	500	...	431	584	...	433	673	...	436	753	...				
132	434	483	...	437	565	...	439	653	...	442	731	...				
133	440	466	...	443	546	...	446	633	...	448	709	...				
134	446	448	...	449	528	...	451	612	...	454	688	...				
135	452	431	...	454	509	...	457	592	...	460	666	...				
136	457	414	...	460	490	...	463	572	...	465	644	...	7	468	723	+·018
137	462	396	...	465	471	...	468	551	...	471	622	...	8	474	700	...
138	468	379	...	471	453	...	474	531	...	476	601	...	9	479	677	...
139	473	362	...	476	434	...	479	511	...	482	579	...	10	485	654	...
140	478	345	...	481	415	+·020	484	491	...	487	557	...	11	489	630	...
141	483	327	...	486	397	...	489	470	...	492	536	...	12	494	607	...
142	488	310	...	491	378	...	494	450	...	496	514	...	13	499	584	...
143	492	293	...	495	359	...	498	430	...	501	492	...	14	504	561	...
144	497	275	...	500	341	...	503	409	...	506	471	+·005	15	509	538	...
145	501	258	...	504	322	...	507	389	+·010	510	449	...	16	514	513	...
146	505	241	...	508	303	...	511	369	...	514	427	...	17	517	491	...
147	509	223	...	512	284	...	516	348	...	518	405	...	18	521	468	...
148	513	206	...	517	266	...	520	328	...	523	384	...	19	526	445	...
149	517	189	...	520	247	...	523	308	...	526	362	...	20	529	422	+·017
150	520	172	+·019	524	228	...	527	288	...	530	340	...	21	533	398	...
151	523	154	...	527	210	...	530	267	...	533	319	...	22	536	375	...
152	501	136	...	505	192	+·019	508	248		512	296	...	23	516	352	...
153	504	132	...	508	186	...	512	240	...	515	286	...	24	519	341	...
154	507	127	...	511	180	...	515	232	...	518	277	...	25	522	329	...
155	510	123	...	514	173	...	518	224	...	527	267	...	26	525	318	...
156	512	118	...	516	167	...	520	216	...	523	258	+·004	27	527	307	...
157	514	114	...	518	161	...	522	208	...	525	248	...	28	529	295	+·016
158	517	110		521	155	...	525	200	+·009	528	239	...	29	532	284	...
159	519	105	...	523	149	...	527	192	...	530	229	...	30	534	273	...
160	521	101	...	525	142	...	529	184	...	532	220	...	31	536	262	...
161	523	96	...	527	136	...	531	176	...	534	210	...	1	538	250	...
162	524	92	...	528	130	...	532	168	...	535	201	...	2	539	239	...
163	525	88	+·018	529	124	...	533	160	...	537	191	...	3	541	228	...
164	527	83	...	531	118	...	535	152	...	538	182	...	4	543	216	...
165	528	79	...	532	111	...	536	144	...	539	172	...	5	543	205	...
166	528	74	...	532	105	...	536	136	...	540	163	+·002	6	544	194	+·015
167	529	70	...	533	99	...	536	128	...	541	153	...	7	545	182	...
168	530	66	...	534	93	+·017	538	120	...	542	144	...	8	546	171	...
169	531	61	...	535	87	...	539	112	...	542	134	...	9	547	160	...
170	531	57	...	535	80	...	539	104	...	543	125	...	10	547	149	...
171	531	52	...	536	74	...	540	96	+·008	543	115	...	11	547	137	...
172	531	48	...	536	68	...	540	88	...	543	106	...	12	547	126	...
173	531	44	...	536	62	...	540	80	...	543	96	...	13	547	115	+·014
174	531	39	...	535	56	...	539	72	...	543	87	...	14	547	103	...
175	531	35	...	535	49	...	539	64	...	542	77	...	15	547	92	...
176	531	30	...	535	43	...	539	56	...	542	68	...	16	546	81	...
177	530	26	...	534	37	...	538	48	...	541	58	...	17	545	69	...
178	529	22	...	533	31	...	537	40	...	540	49	...	18	544	58	...
179	528	17	...	532	25	...	536	32	...	539	39	...	19	543	47	...
180	527	13	...	531	18	...	535	24	...	538	30	...	20	543	36	+·013
181	525	8	...	529	12	...	533	16	+·007	536	20	...	21	541	24	...
182	524	4	+·017	528	8	...	532	8	...	535	11	...	22	540	13	...
183	522	0	...	526	0	...	530	0	...	534	0	+·001	23	538	0	...
184	521	− 4	...	525	− 6	...	529	− 8	...	533	−10	...	24	537	−12	...
185	519	9	...	523	13	...	527	17	...	531	20	...	25	535	23	...
186	517	13	...	521	19	...	525	25	...	529	30	...	26	533	35	...

July.

August.

September.

TABLE III.—Sunrise from 13° to 17° N. latitude—*cont.*

Day of solar year.	Lat. 13° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +1072″ = +·012 of day. Total correctn. as fraction of a day. Madras.	Lat. 14° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +1008″ = +·012 of day. Total correctn. as fraction of a day. Nellore.	Lat. 15° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +168″ = +·002 of day. Total correctn. as fraction of a day. Vizianagaram.	Lat. 16° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −300″ = −·003 of day. Total correctn. as fraction of a day. Belgaum.	Eng. date.	Lat. 17° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +648″. = +·008 of day. Total correctn. as fraction of a day. Hyderabad.
			A.D. 1000–1400			A.D. 1000–1400			A.D. 1000–1400			A.D. 1000–1400				A.D. 1000–1400
187	+515	−18	+·017	+519	−26	+·017	+523	−38	+·007	+527	−40	+·001	Sep. 27	+531	−47	+·012
188	513	22	...	517	32	..	521	41	...	525	49	...	28	529	58	...
189	510	27	...	514	38	...	518	50	+·006	522	59	...	29	526	70	...
190	507	31	...	511	45	...	515	58	...	519	69	·000	30	523	82	...
191	504	36	...	508	51	+·016	512	66	...	516	79	...	1	520	94	...
192	501	40	...	505	58	...	509	75	...	513	89	...	2	517	105	...
193	498	45	...	502	64	...	506	83	...	510	99	...	3	514	117	+·011
194	495	49	...	499	70	...	503	91	..	507	109	...	4	511	129	...
195	492	54	...	496	77	...	500	99	+·005	504	119	−·001	5	508	140	...
196	488	58	...	492	83	+·015	496	108	...	500	129	...	6	504	1 52	+·009
197	484	63	...	488	90	...	492	116	...	496	139	...	7	500	164	...
198	480	67	+·016	484	96	...	488	124	...	492	148	...	8	496	175	...
199	476	72	...	480	102	...	484	133	...	488	158	...	9	492	187	...
200	472	76	...	476	109	...	479	141	...	483	168	...	10	487	199	...
201	468	81	...	472	115	...	475	149	...	479	178	...	11	483	211	...
202	464	85	...	468	122	...	471	158	...	475	188	−·002	12	479	222	...
203	459	90	...	463	128	...	466	166	...	470	198	...	13	474	234	+·008
204	454	94	...	458	134	+·014	461	174	...	465	208	...	October 14	469	246	...
205	450	99	...	454	141	...	456	183	...	460	218	...	15	464	257	...
206	445	103	+·015	449	147	...	451	191	+·003	455	228	...	16	459	269	...
207	441	108	...	445	154	...	447	199	...	451	238	...	17	455	281	...
208	436	112	...	440	160	+·013	442	207	...	446	247	...	18	450	292	...
209	430	117	...	434	166	...	436	216	+·002	440	257	−·003	19	444	304	+·007
210	425	121	+·014	429	173	...	431	224	...	433	267	...	20	439	316	...
211	417	126	...	423	179	+·012	425	232	...	429	277	...	21	433	328	...
212	411	130	...	417	186	...	419	241	...	423	287	−·005	22	427	339	+·006
213	428	136	...	431	192	...	433	248	...	436	296	...	23	438	352	...
214	422	153	...	425	211	...	427	268	...	430	318	...	24	432	375	...
215	415	171	+·013	418	229	...	420	289	...	423	339	−·006	25	425	398	+·005
216	408	188	...	411	248	+·011	413	309	+·001	416	361	...	26	418	422	...
217	401	205	...	404	267	...	406	329	...	409	383	...	27	411	445	...
218	394	222	+·012	397	285	...	399	349	...	402	404	−·007	28	404	468	+·004
219	387	240	...	390	304	+·010	392	370	·000	395	426	...	29	397	491	...
220	380	257	...	383	323	...	385	390	...	388	448	...	30	390	514	...
221	373	274	...	376	342	...	378	410	...	381	470	...	31	383	538	+·003
222	366	292	+·011	369	360	+·009	371	431	...	374	491		1	376	561	...
223	359	309	...	362	379	...	364	451	−·002	367	513	...	2	369	584	...
224	352	326	...	354	398	...	356	471	...	359	535	−·008	3	361	607	+·002
225	345	344	+·010	346	416	...	348	492	...	351	556	...	4	353	630	..
226	338	361	...	338	435	...	340	512	...	343	578	...	5	345	654	+·001
227	330	378	+·009	330	454	...	332	532	...	335	600	−·010	6	337	677	...
228	323	395	...	322	472	+·007	324	552	−·003	327	621	...	7	329	700	...
229	315	413	...	314	491	...	316	573	...	319	643	...	8	321	723	·000
230	307	430	...	306	510	..	307	593	...	310	665	...	9	312	746	...
231	299	447	...	298	529	...	299	613	−·005	302	687	...	November 10	304	770	−·001
232	291	465	...	290	547	...	291	634	...	294	708	−·011	11	296	793	...
233	283	482	+·008	282	566	+·006	283	654	..	286	730	...	12	288	816	...
234	274	499	...	273	585	...	274	674	...	277	752	−·012	13	279	839	−·002
235	266	517	+·007	265	603	...	265	695	...	268	773	...	14	270	862	...
236	258	534	...	257	622	+·005	256	715	−·006	259	795	...	15	261	886	−·003
237	250	551	...	249	641	..	247	735	...	250	817	−·013	16	252	909	...
238	241	568	+·006	240	659	+·004	238	755	−·007	241	838	...	17	243	932	...
239	232	586	...	231	678	...	229	776	...	232	860	−·014	18	234	955	−·004
240	224	603	...	223	699	...	220	796	...	223	882	...	19	225	978	..
241	215	620	+·005	214	716	+·003	211	816	−·008	213	904	...	20	215	1002	−·005
242	206	638	...	205	734	...	202	837	...	204	925	−·015	21	206	1025	...
243	200	656	+·004	200	752	+·002	201	856	−·009	201	948	...	22	202	1048	...
244	191	680	...	191	777	...	192	881	...	192	974	−·016	23	193	1075	−·006
245	181	705	...	181	802	...	182	907	...	182	1000	...	24	183	1101	...
246	171	729	+·003	171	827	+·001	172	932	−·010	172	1027	...	25	173	1128	−·007

TABLE III.—Sunrise from 13° to 17° N. latitude—*cont.*

Day of solar year.	Lat. 13°	Long. +1072″ = +·012 of day.	Lat. 14°	Long. +1008″ = +·012 of day.	Lat. 15°	Long. +168″ = +·002 of day.	Lat. 16°	Long. −300″ = −·003 of day.	Lat. 17°	Long. +648″ = +·008 of day.
	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Madras.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Nellore.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Vizianagaram.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Belgaum.**	**Eng. date.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Hyderabad.**
			A.D. 1000–1400			**A.D.** 1000–1400			**A.D.** 1000–1400			**A.D.** 1000–1400				**A.D.** 1000–1400
247	+161	−754	+·003	+161	−852	+·001	+162	−958	−·010	+162	−1053	−·017					
248	151	778	...	151	877	·000	152	983	−·011	152	1079	...					
249	141	802	+·002	141	902	...	142	1009	...	142	1105	−·018					
250	131	827	...	131	927		132	1034	...	132	1131	...					
251	121	851	+·001	121	952	−·001	122	1060	−·012	122	1158	−·019					
252	111	876	...	111	977	...	112	1085	...	112	1184	...					
253	101	900	...	101	1002	−·002	102	1111	−·013	102	1210	...					
254	91	924	·000	91	1027	...	92	1136	...	92	1236	−·021					
255	81	949	...	81	1052	...	82	1162	...	82	1262	...					
256	71	973	...	71	1077	...	72	1187	−·014	72	1289	...					
257	61	998	−·002	61	1102	−·004	62	1213	...	62	1315	...					
258	51	1022	...	51	1127	...	52	1238	...	52	1341	−·022					
259	41	1046	...	41	1152	...	42	1264	...	42	1367	...					
260	31	1071	...	31	1177	...	32	1289	...	32	1393	...					
261	21	1095	−·003	21	1202	−·005	22	1315	−·016	22	1420	...					
262	11	1120	...	11	1227	...	12	1340	...	12	1446	−·024					
263	2	1144	...	2	1252	...	2	1366	...	2	1472	...					
264	−10	1168	...	−10	1277	...	−10	1391	.	−10	1498	...					
265	20	1193	−·005	20	1302	−·006	20	1417	−·017	20	1524	...					
266	29	1217	...	29	1327	...	30	1442	...	30	1551	...					
267	38	1242	...	38	1352	...	39	1468	...	39	1577	−·025					
268	48	1266	...	48	1377	...	49	1493	...	49	1603	...					
269	58	1290	...	58	1402	...	59	1519	...	59	1629	...					
270	67	1315	...	67	1427	−·008	68	1544	−·019	68	1655	...					
271	78	1339	...	78	1452	...	79	1570	...	79	1682	...					
272	88	1364	...	88	1477	...	89	1595	...	89	1708	−·026					
273	98	1388	...	98	1502	...	99	1621	...	99	1734	...					
274	103	1412	−·007	103	1528	−·009	103	1648	−·020	103	1760	...					
275	110	1423	...	110	1538	...	109	1658	...	110	1769	...					
276	117	1434	...	117	1548	...	116	1667	...	117	1778	...					
277	124	1444	...	124	1558	...	122	1677	...	124	1787	−·027					
278	131	1455	...	131	1568	...	129	1686	...	131	1796	...					
279	138	1466	−·008	139	1578	−·010	135	1696	...	138	1804	...					
280	145	1477	...	146	1589	...	142	1706	−·021	145	1813	...					
281	152	1488	...	153	1599	...	148	1715	...	152	1822	...					
282	159	1498	...	160	1609	...	155	1725	...	159	1831	−·028					
283	166	1509	...	167	1619	...	161	1734	...	166	1840	...					
284	173	1520	−·009	175	1629	−·011	168	1744	...	173	1849	...					
285	180	1531	...	182	1639	...	174	1754	...	180	1858	...					
286	187	1542	...	189	1649	...	181	1763	...	187	1867	...					
287	194	1552	...	196	1659	...	187	1773	...	194	1876	...					
288	201	1563	...	203	1669	..	194	1782	...	201	1885	...					
289	208	1574	...	211	1679	...	200	1792	...	208	1893	...					
290	215	1585	...	218	1690	...	207	1802	−·022	215	1902	...					
291	222	1596	...	225	1700	...	213	1811	...	222	1911	...					
292	229	1606	...	232	1710	−·012	220	1821	...	229	1920	...					
293	236	1617	...	239	1720	...	227	1830	...	236	1929	−·029					
294	243	1628	−·010	247	1730	...	235	1840	...	243	1938	...					
295	250	1639	...	254	1740	...	242	1850	...	249	1947	...					
296	257	1650	...	261	1750	...	249	1859	−·023	256	1956	...					
297	264	1660	...	268	1760	...	257	1869	...	262	1965	...					
298	271	1671	...	275	1770	...	264	1878	...	269	1974	−·028					
299	278	1682	...	283	1780	...	272	1888	...	276	1982	...					
300	285	1693	...	290	1791	...	279	1898	...	282	1991	.					
301	292	1704	−·009	297	1801	...	287	1907	...	289	2000	...					
302	299	1714	...	304	1811	...	294	1917	...	295	2009	...					
303	307	1725	...	311	1821	...	302	1926	−·021	302	2018	...					
304	315	1736	...	319	1832	...	310	1936	...	308	2028	...					
305	318	1718	...	322	1813	...	313	1915	...	311	2006	..					

	Day of solar year.	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Madras.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Nellore.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Vizianagaram.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Belgaum.**		**Eng. date.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Hyderabad.**
		Lat. 13°	Long. +1072″ = +·012 of day.		**Lat. 14°**	Long. +1008″ = +·012 of day.		**Lat. 15°**	Long. +168″ = +·002 of day.		**Lat. 16°**	Long. −300″ = −·003 of day.			**Lat. 17°**	Long. +648″ = +·008 of day.	
				A.D. 1000–1400			**A.D.** 1000–1400			**A.D.** 1000–1400			**A.D.** 1000–1400					**A.D.** 1000–1400
November.	**26**	+163	−1155	−·007														
	27	153	1181	−·008														
	28	143	1208	...														
	29	133	1235	..														
	30	123	1262	−·009														
	1	113	1288	...														
	2	103	1315	−·011														
	3	93	1342	...														
	4	83	1368	...														
	5	73	1395	−·012														
	6	63	1422	...														
	7	53	1448	...														
	8	43	1475	...														
	9	33	1502	...														
	10	23	1529	−·013														
	11	13	1555	...														
	12	2	1582	...														
	13	−10	1609	...														
	14	20	1635	−·015														
	15	31	1662	...														
December.	**16**	40	1689	...														
	17	50	1715	...														
	18	60	1742	...														
	19	69	1769	...														
	20	80	1796	...														
	21	90	1822	...														
	22	100	1849	...														
	23	102	1876	...														
	24	109	1884	−·017														
	25	116	1893	...														
	26	123	1901	...														
	27	130	1910	...														
	28	137	1918	...														
	29	144	1926	...														
	30	151	1935	−·018														
	31	158	1943	...														
	1	165	1952	...														
	2	172	1960	...														
	3	179	1968	...														
	4	186	1979	...														
	5	193	1985	...														
	6	200	1994	−·019														
	7	207	2002	...														
	8	214	2010	...														
	9	221	2019	...														
	10	228	2027	..														
	11	235	2036	−·020														
	12	242	2044	...														
	13	248	2052	...														
January.	**14**	255	2061	...														
	15	261	2069	...														
	16	268	2078	−·019														
	17	274	2086	...														
	18	280	2094	...														
	19	286	2103	...														
	20	293	2111	...														
	21	300	2120	−·018														
	22	306	2128	...														
	23	309	2104	...														

TABLE III.—Sunrise from 13° to 17° N. latitude—*cont.*

Day of solar year.	Lat. 13°	Long. +1072″ = +·012 of day.	Lat. 14°	Long. +1008″ = +·012 of day.	Lat. 15°	Long. +168″ = +·002 of day.	Lat. 16°	Long. −300″ = −·003 of day.	Lat. 17°	Long. +648″ = +·008 of day.
	Eqn. of time in seconds.		Eqn. of time in seconds.		Eqn. of time in seconds.		Eqn. of time in seconds.		Eqn. of time in seconds.	
	⊙'s trop. long. in seconds.		⊙'s trop. long. in seconds.		⊙'s trop. long. in seconds.		⊙'s trop. long. in seconds.		⊙'s trop. long. in seconds.	
	Total correctn. as fraction of a day. **Madras.**		Total correctn. as fraction of a day. **Nellore.**		Total correctn. as fraction of a day. **Vizianagaram.**		Total correctn. as fraction of a day. **Belgaum.**		Total correctn. as fraction of a day. **Hyderabad.**	
		A.D. 1000—1400		A.D. 1000—1400		A.D. 1000—1400		A.D. 1000—1400		A.D. 1000—1400
306	−321 −1700	−·009	−325 −1793	−·010	−316 −1894	−·021	−314 −1983	−·027	−312 −2081	−·018
307	324 1682	...	328 1774	...	319 1874	...	317 1961	...	315 2057	−·017
308	327 1664	−·008	331 1755	...	322 1853	...	320 1939	...	318 2033	...
309	330 1645	...	334 1735	...	325 1832	...	323 1916	...	321 2009	...
310	333 1627	...	337 1716		328 1811	...	326 1894	...	324 1986	...
311	336 1609	...	340 1697	−·009	331 1790	...	329 1872	...	327 1962	...
312	339 1591	...	343 1678	...	334 1770	...	332 1850	...	330 1938	−·016
313	342 1573	...	346 1658	...	337 1749	−·019	334 1827	−·026	333 1915	...
314	345 1555	...	349 1639	...	340 1728	...	337 1805	...	336 1891	...
315	348 1537	...	352 1620	...	343 1707	...	340 1783	..	339 1867	...
316	351 1519	..	355 1600	...	346 1686	...	343 1760	−·025	342 1844	−·015
317	354 1501	−·007	358 1581	...	349 1666	...	346 1738	...	345 1820	...
318	357 1483	...	361 1562	−·008	352 1645	...	349 1716	−·024	348 1796	...
319	360 1464	...	364 1542	...	355 1624	−·018	352 1693	...	351 1772	...
320	363 1446	−·006	367 1523	−·007	358 1603	...	355 1671	−·023	354 1749	−·014
321	366 1428	...	370 1504	...	361 1582	...	358 1649	...	357 1725	...
322	369 1410	...	373 1485	...	364 1562	...	361 1627	...	360 1701	...
323	372 1392	...	376 1465	...	367 1541	−·017	364 1604	...	363 1678	...
324	375 1374	−·004	380 1446	...	370 1520	...	367 1582	...	367 1654	−·013
325	378 1356	...	383 1427	...	373 1499	−·016	370 1560	...	370 1630	...
326	381 1338	...	386 1407	...	376 1478	...	373 1537	...	374 1607	−·012
327	384 1320	...	389 1388	−·005	379 1458	...	376 1515	−·022	377 1583	...
328	387 1302	...	392 1369	...	382 1437	...	379 1493	...	380 1559	−·011
329	390 1283	...	395 1349	...	385 1416	...	382 1470	−·021	383 1535	...
330	393 1265	...	398 1330	...	388 1395	−·015	385 1448	..	386 1512	−·010
331	396 1247	−·003	401 1311	..	391 1374	...	388 1426	−·020	389 1488	...
332	400 1229	...	404 1292	−·004	394 1354	−·014	391 1404	...	392 1464	−·009
333	404 1211	−·002	406 1272	...	398 1333	...	395 1381	−·019	395 1441	...
334	408 1193	−·001	408 1253	−·003	402 1312	−·013	399 1359	...	397 1417	−·008
335	413 1176	...	410 1232	...	406 1292	...	402 1336	−·018	399 1392	...
336	413 1137	...	411 1191	−·002	407 1249	−·012	403 1291	...	400 1346	−·007
337	414 1098	+·000	411 1150	...	407 1206	...	403 1247	−·017	400 1299	...
338	414 1058	...	412 1109	...	408 1163	−·011	404 1202	...	401 1253	...
339	415 1019	+·001	412 1068	−·001	408 1120	...	404 1158	−·016	401 1206	−·006
340	415 980	...	413 1027	..	409 1077	−·010	405 1113	...	402 1160	...
341	416 941	+·002	413 986	·000	409 1034	...	405 1069	−·015	402 1114	−·005
342	416 902	...	414 945	...	410 991	−·009	406 1024	...	403 1067	...
343	417 862	...	414 904	+·001	410 948	...	406 980	−·014	403 1021	−·004
344	417 823	...	415 863	...	411 905	−·008	407 935	...	404 974	...
345	418 784	...	416 822	+·002	411 862	...	407 891	−·013	404 928	−·002
346	418 745	+·004	416 781	...	412 819	−·006	408 846	...	405 882	...
347	419 706	...	417 740	+·003	412 776	...	408 802	−·012	405 835	−·001
348	419 666	+·005	417 699	...	413 733	−·005	409 757	...	406 789	..
349	420 627	...	418 658	...	413 690	...	409 713	−·011	406 742	·000
350	420 588	...	418 617	+·004	414 647	...	410 668	...	407 696	...
351	421 549	...	419 576	...	414 604	...	410 624	−·010	407 650	+·001
352	421 510	...	419 535	+·005	415 561	−·004	411 579	...	408 603	...
353	422 470	+·006	420 494	...	416 518	...	411 535	−·009	408 557	+·002
354	422 431	...	420 453	+·006	416 475	−·003	412 490	...	409 510	...
355	423 392	+·007	421 412	...	417 432	...	413 446	−·008	409 464	...
356	423 353	...	422 371	+·007	418 389	−·002	413 401	...	410 418	+·004
357	424 314	+·008	422 330	..	418 346	...	414 357	−·007	410 371	...
358	424 274	...	423 289	+·008	419 303	−·001	414 312	...	411 325	+·005
359	425 235	+·009	424 248	...	419 260	...	415 268	−·006	412 278	...
360	426 196	...	424 207	+·009	420 217	·000	416 223	...	413 232	+·006
361	427 157	+·010	425 166	...	421 174	...	417 179	−·005	414 186	...
362	428 118		426 125	+·010	422 131	+·001	418 134	...	415 139	+·007
363	429 79	...	427 84	...	423 88	...	419 89	−·004	416 92	...
364	430 40	+·011	428 41	+·011	424 43	...	420 49	...	417 46	+·008
365	432 0	...	429 0	...	425 0	+·002	421 10	−·003	418 00	...

January: 24, 25, 26, 27, 28, 29, 30, 31, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

February: 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

March: 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24

TABLE III.—Sunrise from 18° to 22° N. latitude—*cont.*

Day of solar year.	Lat. 18° Long. − 428″ = − ·005 of day.			Lat. 19° Long. − 460″ = − ·005 of day.			Lat. 20° Long. − 476″ = − ·0055 of day.			Lat. 21° Long. + 800″ = + ·009 of day.			Lat. 22° Long. − 616″ = − ·007 of day.			Eng. date.
	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Satara.	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Poona.	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Nasik.	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Nagpur.	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Baroda.	
			A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.	
1	−409	+48	−·004	−405	+50	−·003	−401	+52	−·003	−397	+54	+·011				
2	407	96	−·003	403	100	...	399	104	...	395	107	+·012				
3	405	144	...	401	150	−·002	398	156	−·002	393	161					
4	404	193	−·002	400	200	...	396	208	−·001	392	215	+·013				
5	402	241	−·001	398	250	−·001	394	259	...	390	269	+·014				
6	400	289	...	396	300	·000	392	311	000	388	323	...				
7	398	338	·000	394	350	...	390	363	...	386	377	+·015				
8	396	386	...	392	400	+·001	388	425	..	384	431	+·016				
9	393	434	+·001	390	450	...	386	477	+·001	382	485	...				
10	391	483	...	387	500	+·002	383	529	+·002	379	539	+·017				
11	388	531	+·002	385	550	...	381	580	...	377	592	...				
12	386	579	+·003	382	600	+·003	378	632	+·003	374	646	+·018				
13	383	627	...	380	650	+·004	376	684	+·004	372	700	+·019				
14	380	676	+·004	377	700	...	373	736	...	369	754	...				
15	377	724	...	374	750	+·005	370	788	+·005	366	808	+·020				
16	374	772	+·005	371	800	...	367	840	+·006	363	862	+·021				
17	371	821	...	367	850	...	364	892	...	360	916	...				
18	367	869	+·006	364	900	+·006	361	944	+·007	357	970	+·022				
19	364	917	...	361	950	+·007	357	996	...	353	1024	...				
20	360	966	+·007	357	1000	+·008	354	1048	+·008	350	1078	+·023				
21	357	1014	...	354	1050	...	350	1099	+·009	346	1131	+·024				
22	353	1062	+·008	350	1100	...	346	1152	...	343	1185	...				
23	349	1110	...	346	1150	+·009	342	1204	+·010	339	1239	+·025				
24	346	1159	+·009	342	1200	...	339	1256	...	335	1293	...				
25	341	1207	...	338	1250	+·010	335	1307	...	331	1347	...				
26	337	1255	...	334	1300	...	331	1359	...	327	1401	+·026				
27	333	1304	+·010	330	1350	..	327	1411	...	323	1455	...				
28	329	1352	...	326	1400	+·011	323	1463	+·011	319	1509	...				
29	324	1400	+·011	322	1450	...	318	1515	...	315	1563	...				
30	357	1448	...	354	1500	...	352	1556	...	349	1616	+·027				
31	352	1473	...	349	1527	+·012	347	1584	+·012	344	1646	...				
32	346	1498	...	344	1553	...	342	1612	...	339	1675	+·028				
33	341	1524	+·012	339	1580	...	336	1640	...	334	1705	...				
34	336	1549	...	333	1607	...	331	1668	+·013	328	1735	. .				
35	330	1574	...	328	1634	+·013	325	1696	...	323	1764	+·029				
36	324	1599	+·013	322	1660	...	320	1725	...	317	1794	...				
37	319	1624	...	316	1687	...	314	1753	+·014	312	1824	...				
38	313	1650	...	311	1714	+·014	309	1781	...	306	1854	+·030				
39	307	1675	+·014	305	1740	...	303	1809	...	300	1883	...				
40	301	1700	...	299	1767	+·015	296	1837	+·015	294	1913	+·031				
41	295	1725	...	293	1794	...	291	1865	+·016	288	1943	...				
42	288	1750	+·015	286	1820	...	284	1893	...	282	1972	+·032				
43	282	1776	...	280	1847	+·016	278	1921	...	276	2002	..				
44	276	1801	...	274	1874	...	272	1949	+·017	270	2032	+·033				
45	270	1826	...	267	1900	...	265	1977	...	263	2061	...				
46	263	1851	+·016	261	1927	+·017	259	2006	+·018	257	2091	...				
47	256	1876	+·017	254	1954	...	252	2034	...	250	2121	+·034				
48	249	1902	...	247	1981	...	246	2062	...	244	2151	...				
49	243	1927	...	241	2007	+·018	239	2090	+·019	237	2180	...				
50	236	1952	...	234	2034	...	232	2118	...	230	2210	+·035				
51	229	1977	...	227	2061	...	226	2146	...	224	2240	...				
52	222	2002	...	220	2087	...	219	2174	...	217	2269	...				
53	214	2028	+·018	213	2114	...	211	2202	+·020	210	2299	...				
54	207	2053	...	206	2141	+·019	204	2230	...	203	2329	...				
55	200	2078	...	199	2167	...	197	2258	...	196	2358	...				
56	193	2103	...	192	2194	...	190	2287	...	189	2388	...				
57	185	2128	...	184	2221	...	183	2315	...	181	2418	...				
58	178	2154	...	177	2248	...	175	2343	...	174	2448	...				
59	170	2179	...	169	2274	...	168	2371	...	167	2477	...				
60	163	2204	...	162	2301	...	161	2399	...	159	2507	...				
61	180	2228	...	179	2328	...	179	2428	...	179	2536	...				
62	171	2220	...	171	2321	...	170	2422	...	170	2530	...				
25	393	+56	−·005										March.	25	393	+56	−·005	
26	391	111	−·004											26	391	111	−·004	
27	389	167	−·003											27	389	167	−·003	
28	388	223	...											28	388	223	...	
29	386	278	−·002											29	386	278	−·002	
30	384	334	−·001											30	384	334	−·001	
31	382	390	...											31	382	390	...	
1	380	445	·000											1	380	445	·000	
2	378	501	+·001											2	378	501	+·001	
3	375	557	+·002											3	375	557	+·002	
4	373	612	...											4	373	612	...	
5	371	668	+·003											5	371	668	+·003	
6	368	724	+·004											6	368	724	+·004	
7	365	779	...											7	365	779	...	
8	362	835	+·005											8	362	835	+·005	
9	359	891	...											9	359	891	...	
10	356	946	+·006											10	356	946	+·006	
11	353	1002	+·007											11	353	1002	+·007	
12	350	1058	+·008											12	350	1058	+·008	
13	346	1114	...											13	346	1114	...	
14	343	1169	...											14	343	1169	...	
15	339	1225	+·009											15	339	1225	+·009	
16	335	1281	...											16	335	1281	...	
17	332	1336	...											17	332	1336	...	
18	328	1392	+·010											18	328	1392	+·010	
19	324	1448	...											19	324	1448	...	
20	320	1503	+·011											20	320	1503	+·011	
21	316	1559	...											21	316	1559	...	
22	312	1615	...											22	312	1615	...	
23	346	1672	+·012											23	346	1672	+·012	
24	342	1703	...											24	342	1703	...	
25	336	1734	...											25	336	1734	...	
26	331	1766	+ 013											26	331	1766	+ 013	
27	326	1797	...											27	326	1797	...	
28	320	1828	...											28	320	1828	...	
29	315	1859	+·014											29	315	1859	+·014	
30	309	1890	...											30	309	1890	...	
1	304	1922	+·015										April.	1	304	1922	+·015	
2	298	1953	...											2	298	1953	...	
3	292	1984	+·016											3	292	1984	+·016	
4	286	2015	...											4	286	2015	...	
5	280	2046	+·017											5	280	2046	+·017	
6	274	2078	...											6	274	2078	...	
7	268	2109	...											7	268	2109	...	
8	261	2140	+·018											8	261	2140	+·018	
9	255	2171	...											9	255	2171	...	
10	248	2202	+·019											10	248	2202	+·019	
11	242	2234	...											11	242	2234	...	
12	236	2265	+·020											12	236	2265	+·020	
13	229	2296	...											13	229	2296	...	
14	222	2327	...											14	222	2327	...	
15	215	2358	+·021											15	215	2358	+·021	
16	208	2390	...											16	208	2390	...	
17	201	2421	...											17	201	2421	...	
18	194	2452	...											18	194	2452	...	
19	187	2483	...											19	187	2483	...	
20	180	2514	...											20	180	2514	...	
21	173	2546	...											21	173	2546	...	
22	165	2577	...											22	165	2577	...	
23	158	2608	...											23	158	2608	...	
24	178	2640	...											24	178	2640	...	
25	169	2635	...											25	169	2635	...	

TABLE III.—Sunrise from 18° to 22° N. latitude—*cont.*

Day of solar year.	Lat. 18° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Satara.	Lat. 19° Long. − 428″ = −·005 of day. Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Poona.	Lat. 20° Long. − 460″ = −·005 of day. Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Nasik.	Lat. 21° Long. − 476″ = −·0055 of day. Eqn. of time in seconds.	☉'s trop. long. in section.	Total correctn. as fraction of a day. Nagpur.	Lat. 22° Long. + 800″ = + ·009 of day. Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Baroda.
Eng. date.	A.D. 1000–1400.			A.D. 1000–1400.			A.D. 1000–1400.			A.D. 1000–1400.			A.D. 1000–1400.		
63	−162	+2213	+·018	−162	+2384	+·019	−162	+2415	+·020	−161	+2524	+·035			
64	153	2205	...	153	2306	...	153	2409	...	152	2518	...			
65	145	2198	...	144	2300	...	144	2402	...	144	2512	...			
66	135	2190	...	135	2292	...	135	2396	...	135	2500	...			
67	126	2182	...	126	2285	...	126	2390	...	126	2501	...			
68	117	2175	...	117	2278	...	117	2383	...	117	2495	...			
69	108	2167	...	108	2271	...	107	2377	...	107	2489	...			
70	99	2160	...	99	2264	...	98	2370	...	98	2483	...			
71	90	2152	...	89	2257	...	89	2364	...	89	2477	+·036			
72	80	2144	...	80	2250	...	80	2358	...	80	2471	...			
73	71	2137	...	71	2243	...	71	2351	...	70	2465	...			
74	62	2129	...	61	2236	...	61	2345	...	61	2459	...			
75	53	2122	...	53	2227	...	53	2338	...	53	2453	...			
76	43	2114	...	42	2221	...	42	2332	...	42	2447	...			
77	33	2106	...	33	2214	...	33	2326	...	33	2442	...			
78	24	2099	...	24	2207	...	24	2319	...	24	2436	...			
79	15	2091	...	15	2200	...	15	2313	...	15	2430	...			
80	5	2084	...	5	2193	...	5	2306	+·021	5	2424	...			
81	+4	2076	...	+4	2186	...	+4	2300	...	+4	2418	...			
82	14	2086	...	13	2179	...	13	2294	...	13	2412	...			
83	23	2061	+·017	23	2172	...	23	2287	...	23	2406	...			
84	33	2053	...	32	2165	+·018	32	2281	+·020	32	2400	...			
85	42	2046	...	42	2158	...	42	2274	...	42	2394	...			
86	51	2038	...	51	2150	...	51	2268	...	51	2388	+·035			
87	60	2030	...	60	2143	+·017	60	2262	+·019	60	2383	...			
88	70	2023	+·016	70	2136	...	70	2255	...	69	2377	...			
89	79	2015	...	79	2129	...	79	2249	...	79	2371	+·034			
90	88	2008	...	88	2122	+·016	88	2242	+·018	88	2365	...			
91	106	2000	...	106	2116	...	106	2236	...	107	2360	...			
92	116	1972	...	116	2088	...	117	2207	+·017	117	2331	...			
93	126	1945	+·015	126	2060	...	126	2179	...	127	2302	...			
94	136	1917	...	136	2088	...	136	2150	...	137	2272	...			
95	146	1890	...	146	2004	...	146	2122	...	146	2243	+·033			
96	155	1862	...	156	1976	...	156	2093	...	156	2214	...			
97	165	1835	...	166	1948	...	166	2064	...	166	2185	...			
98	175	1807	...	175	1920	...	176	2036	...	176	2156	...			
99	185	1780	+·014	185	1892	...	186	2007	...	186	2126	...			
100	194	1752	...	194	1864	...	195	1979	+·016	195	2097	+·032			
101	203	1725	...	204	1836	+·015	204	1950	...	205	2068	...			
102	213	1697	...	263	1808	...	214	1921	...	214	2039	...			
103	222	1670	...	223	1780	...	223	1893	+·015	224	2010	+·031			
104	232	1642	...	232	1752	...	233	1864	...	233	1980	...			
105	241	1615	+·013	242	1724	...	242	1836	...	243	1951	+·030			
106	250	1587	...	251	1696	...	251	1867	...	252	1922	...			
107	259	1560	...	260	1668	+·014	260	1778	...	261	1893	...			
108	268	1532	+·012	269	1640	...	269	1750	...	270	1864	...			
109	277	1505	...	278	1620	...	278	1721	...	279	1834	...			
110	286	1477	...	287	1584	+·013	287	1693	...	288	1805	...			
111	294	1450	...	295	1556	...	296	1664	+·014	296	1776	...			
112	303	1422	...	304	1528	...	305	1635	...	305	1747	...			
113	312	1395	...	312	1500	...	313	1607	...	314	1718	+·029			
114	321	1367	...	321	1472	...	322	1578	...	323	1688	...			
115	329	1340	+·011	329	1444	+·012	330	1550	...	331	1659	...			
116	337	1312	...	338	1416	...	339	1521	+·013	339	1630	+·028			
117	345	1285	...	346	1388	...	346	1492	...	347	1601	...			
118	353	1257	...	354	1360	...	354	1464	+·012	356	1572	...			
119	361	1230	...	362	1332	...	362	1435	...	363	1542	...			
120	369	1202	+·010	369	1304	+·011	370	1407	...	371	1513	...			
121	371	1175	...	373	1276	...	375	1378	...	377	1484	+·027			
122	379	1148	...	381	1248	...	383	1348	...	385	1456	...			
123	386	1123	...	388	1222	...	390	1320	+·011	393	1427	+·026			
124	394	1099	...	396	1195	...	398	1293	...	401	1397	...			
125	400	1073	+·009	403	1169	+·010	405	1265	+·010	407	1368	...			
May. 26													−161	+2630	+·021
27													152	2624	...
28													143	2619	...
29													134	2614	...
30													125	2609	...
31													116	2604	...
1													107	2598	...
2													98	2593	...
3													89	2588	...
4													79	2583	...
5													70	2578	...
6													61	2572	...
7													53	2567	...
8													42	2562	...
9													33	2557	...
10													24	2552	...
11													15	2546	...
12													5	2541	+·022
13													+4	2536	...
14													13	2531	...
June. 15													23	2526	...
16													32	2520	+·021
17													42	2515	...
18													51	2510	...
19													60	2505	...
20													69	2500	+·020
21													79	2494	...
22													88	2489	+·019
23													107	2484	...
24													117	2454	...
25													127	2424	...
26													137	2395	...
27													147	2365	...
28													157	2335	+·018
29													167	2305	...
30													177	2275	...
1													187	2246	...
2													196	2216	...
3													205	2186	...
4													215	2156	+·017
5													224	2126	...
6													234	2097	...
7													243	2067	...
8													253	2037	+·016
9													261	2007	...
10													271	1977	...
11													280	1948	+·015
12													289	1918	...
13													297	1888	...
14													306	1858	...
15													315	1828	+·014
16													324	1799	...
17													332	1769	...
18													340	1739	+·013
19													348	1709	...
20													357	1679	...
21													364	1650	...
22													372	1620	...
23													379	1590	...
24													387	1560	+·012
25													395	1529	...
26													403	1498	...
July. 27													410	1467	+·011

TABLE III.—Sunrise from 18° to 22° N. latitude—*cont.*

Day of solar year.	Lat. 18° Long. −428″ = −·005 of day.			Lat. 19° Long. −460″ = −·005 of day.			Lat. 20° Long −476″ = −·0055 of day.			Lat. 21° Long. +800″ = +·009 of day.				Lat. 22° Long −616″ = −·007 of day.			
	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Satara.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Poona.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Nasik.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Nagpur.**	**Eng. date.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Baroda.**	
	A.D. 1000–1400.			**A.D. 1000–1400.**			**A.D. 1000–1400.**			**A.D. 1000–1400.**				**A.D. 1000–1400.**			
126	+408	+1049	+·009	+410	+1143	+·010	+412	+1237	+·010	+415	+1339	+·025		**28**	+417	+1436	+·011
127	415	1024	...	417	1116	...	419	1209	+·009	422	1309	...		**29**	424	1405	+·010
128	421	1000	...	424	1090	+·009	426	1182	...	429	1280	...		**30**	431	1375	...
129	428	975	...	430	1064	...	433	1154	...	435	1251	...		**31**	438	1344	...
130	435	950	+·008	437	1038	...	440	1126	...	442	1222	...		**1**	445	1313	...
131	441	926	...	443	1011	...	446	1099	+·008	447	1192	...		**2**	451	1282	...
132	447	901	...	450	985	...	452	1071	...	455	1162	+·024		**3**	457	1251	+·009
133	453	876	...	456	959	+·008	459	1043	...	461	1134	...		**4**	464	1220	...
134	459	852	...	462	932	...	464	1016	...	467	1104	...		**5**	470	1189	...
135	465	827	...	468	906	...	470	988	...	473	1075	...		**6**	476	1159	...
136	471	802	+·007	474	880	...	476	960	...	479	1046	...		**7**	482	1127	+·008
137	476	777	...	479	853	...	482	932	...	485	1016	+·023		**8**	487	1096	...
138	488	753	...	485	827	+·007	487	905	...	490	987	...		**9**	493	1066	...
139	487	728	+·006	490	801	...	493	877	+·007	496	958	...		**10**	499	1035	+·007
140	492	703	...	495	775	...	498	849	...	501	929	+·022		**11**	504	1004	...
141	497	679	...	500	748	+·006	503	822	...	506	899	...		**12**	509	973	+·006
142	502	654	...	505	722	...	508	794	+·006	511	870	...		**13**	514	942	...
143	507	629	+·005	510	696	...	513	766	...	516	841	+·021		**14**	519	911	...
144	511	605	...	514	669	...	517	739	...	520	811	...		**15**	523	880	...
145	516	580	...	519	643	..	522	711	...	525	782	...		**16**	528	849	...
146	520	555	...	523	617	...	526	683	...	529	753	...		**17**	532	818	...
147	524	530	...	527	590	...	530	655	...	534	723	...		**18**	536	787	...
148	529	506	...	532	564	...	535	628	...	538	694	...		**19**	540	757	+·005
149	532	481	...	536	538	...	539	600	...	542	665	...		**20**	544	726	...
150	536	456	...	539	512	+·005	542	572	+·005	545	636	+·020		**21**	548	695	...
151	539	432	...	542	485	...	545	545	...	548	606	...		**22**	552	664	...
152	519	408	...	523	460	...	527	516	...	531	576	...		**23**	535	632	+·004
153	522	395	...	526	445	...	530	499	...	534	557	...		**24**	538	612	...
154	526	382	+·004	529	430	...	533	483	...	537	539	...		**25**	541	591	...
155	529	368	...	532	416	...	536	466	+·004	540	520	+·019		**26**	544	571	...
156	531	355	...	534	401	+·004	538	450	...	542	502	...		**27**	546	550	+·003
157	533	342	...	536	386	...	540	433	...	544	483	...		**28**	548	530	...
158	536	329	...	538	371	...	542	416	...	546	464	...		**29**	550	510	...
159	538	316	...	540	356	...	544	400	...	548	446	...		**30**	552	489	...
160	540	302	+·003	542	342	...	546	383	+·003	550	427	...		**31**	554	469	+·002
161	542	289	...	544	327	+·003	548	367	...	552	409	+·018		**1**	556	448	...
162	543	276	...	546	312	...	549	350	...	553	390	...		**2**	557	428	...
163	545	263	...	547	297	...	551	333	...	555	371	...		**3**	559	408	...
164	547	250	...	548	282	...	553	317	...	557	353	...		**4**	561	387	...
165	548	236	...	550	268	...	554	300	...	558	334	...		**5**	562	367	...
166	548	223	+·002	551	253	...	554	284	...	558	316	+·017		**6**	562	348	...
167	549	210	...	552	238	+·002	555	267	...	559	297	...		**7**	563	328	+·001
168	550	197	...	553	223	...	556	250	...	560	278	...		**8**	564	308	...
169	551	184	...	554	208	...	557	234	...	561	260	...		**9**	565	285	...
170	551	170	...	554	194	...	557	217	+·002	561	241	...		**10**	565	265	...
171	551	157	...	554	179	...	557	201	...	561	223	+·016		**11**	565	244	·000
172	552	144	...	554	164	...	557	184	...	561	204	...		**12**	565	224	...
173	551	131	+·001	554	149	+·001	557	167	+·001	561	185	...		**13**	565	204	...
174	551	118	...	554	134	...	557	151	...	561	167	...		**14**	565	183	...
175	551	104	...	554	120	...	557	131	...	561	148	+·015		**15**	565	163	−·001
176	550	91	...	554	105	...	557	118	...	561	130	...		**16**	565	142	...
177	549	78	...	553	90	...	557	101	...	560	111	...		**17**	564	122	...
178	548	65	...	552	75	...	555	84	·000	559	92	...		**18**	563	102	...
179	548	52	...	551	60	·000	554	68	...	558	74	...		**19**	562	81	−·002
180	547	38	...	550	46	...	553	51	...	557	55	+·014		**20**	561	61	...
181	545	25	...	548	31	...	551	35	...	555	37	...		**21**	559	40	...
182	544	12	·000	547	16	...	550	18	...	554	18	...		**22**	558	20	...
183	542	0	...	545	0	...	549	0	−·001	554	0	...		**23**	558	0	−·003
184	541	−14	...	544	−15	−·001	547	−17	...	552	−19	+·013		**24**	556	−21	...
185	539	27	...	542	31	...	545	34	...	550	38	...		**25**	554	42	...
186	537	41	...	540	46	...	543	52	...	548	58	...		**26**	552	63	...

July. August. September.

TABLE III.—Sunrise from 18° to 22° N. latitude—*cont.*

Day of solar year.	Lat. 18° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −428″ = −·005 of day. Total correctn. as fraction of a day. Satara.	Lat. 19° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −460″ = −·005 of day. Total correctn. as fraction of a day. Poona.	Lat. 20° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −476″ = −·0055 of day. Total correctn. as fraction of a day. Nasik.	Lat. 21° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +800″ = +·009 of day. Total correctn. as fraction of a day. Nagpur.	Eng. date.	Lat. 22° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −616″ = −·007 of day. Total correctn. as fraction of a day. Baroda.
			A.D. 1000–1400.			A.D. 1000–1400.			A.D. 1000–1400.			A.D. 1000–1400.				A.D. 1000–1400.
187	+535	−54	·000	+538	−61	−·001	+541	−69	−·001	+546	−77	+·013	27	+550	−84	−·004
188	533	68	...	536	76	...	539	86	−·002	544	96	...	Sep. 28	548	105	...
189	530	82	−·001	533	92	...	536	103	...	541	115	+·012	29	545	127	...
190	527	95	...	530	107	−·002	533	120	...	538	134	...	30	542	148	...
191	524	109	...	527	122	...	530	138	...	535	154	...	1	539	169	−·005
192	521	122	−·002	524	138	...	527	155	...	532	173	...	2	536	190	...
193	518	136	...	521	153	...	524	172	−·003	529	192	+·011	3	533	211	...
194	515	150	...	518	168	...	521	189	...	526	211	...	4	530	232	...
195	512	168	...	515	184	−·003	518	206	...	523	230	...	5	527	253	−·006
196	508	177	...	511	199	...	514	224	...	519	250	+·010	6	523	274	...
197	504	190	...	507	214	...	510	241	...	515	269	...	7	519	295	...
198	500	204	...	503	229	...	506	258	−·004	511	288	...	8	515	316	−·007
199	496	218	...	499	245	...	502	275	...	507	307	...	9	511	338	...
200	491	231	...	494	260	...	497	292	...	5[illegible]	326	+·009	10	506	359	...
201	487	245	−·003	490	275	−·004	493	310	...	4[illegible]	346	...	11	502	380	...
202	483	258	...	486	291	...	489	327	...	494	365	...	12	498	401	−·008
203	478	272	...	481	306	...	484	344	−·005	490	384	...	13	493	422	...
204	473	286	−·004	476	321	−·005	479	361	...	484	403	+·008	14	488	443	...
205	468	299	...	471	337	...	474	378	−·006	479	422	...	15	483	464	−·009
206	463	313	−·005	466	352	...	469	396	−·007	474	442	...	16	478	485	...
207	459	326	−·006	462	367	−·006	465	413	...	470	461	+·007	October. 17	474	506	−·010
208	454	340	...	457	382	...	460	430	...	465	480	+·006	18	469	527	...
209	448	354	...	451	398	...	454	447	−·008	459	499	...	19	463	549	−·011
210	443	367	...	446	413	−·007	449	464	...	454	518	...	20	458	570	...
211	437	381	...	440	428	...	443	482	...	448	538	+·005	21	452	591	...
212	431	394	−·007	434	444	−·008	437	499	...	442	557	+·004	22	446	612	−·012
213	441	408	...	443	460	...	446	516	...	449	576	...	23	451	632	−·013
214	435	433	−·008	437	486	...	440	544	−·009	443	605	...	24	445	663	...
215	428	457	...	430	513	−·009	433	571	...	436	635	...	25	438	694	...
216	421	482	...	423	539	...	426	599	−·010	429	664	+·003	26	431	725	−·014
217	414	507	...	416	565	...	419	627	−·011	422	693	...	27	424	756	...
218	407	531	−·009	409	591	−·010	412	654	...	415	722	...	28	417	786	...
219	400	556	...	402	618	...	405	682	−·012	408	752	+·002	29	409	817	−·015
220	393	581	...	395	644	...	398	710	...	401	781	...	30	402	848	...
221	386	606	−·010	388	670	...	391	738	...	394	810	...	31	394	879	−·016
222	379	630	...	381	697	−·011	384	765	−·013	387	840	+·001	1	386	910	...
223	372	655	−·011	374	723	−·012	377	793	...	380	869	·000	2	378	941	−·017
224	364	680	...	366	749	...	369	821	...	372	898	...	3	370	972	...
225	356	704	...	358	776	−·013	361	848	−·014	364	928	...	4	362	1003	...
226	348	729	−·012	350	802	...	353	876	...	356	957	−·001	5	354	1034	−·018
227	340	754	...	342	828	...	345	904	...	348	986	...	6	345	1065	−·019
228	332	778	−·013	334	854	−·014	337	931	−·015	340	1015	−·002	7	337	1095	...
229	324	803	...	326	881	...	329	959	...	332	1045	...	8	329	1126	...
230	315	828	...	317	907	−·015	320	987	...	323	1074	...	9	320	1157	−·020
231	307	853	...	309	933	...	312	1015	−·016	315	1103	−·003	10	311	1188	...
232	299	877	−·014	301	960	...	304	1042	...	307	1133	...	11	303	1219	−·021
233	291	902	...	293	986	−·016	296	1070	−·017	298	1162	−·004	12	294	1250	...
234	282	927	−·015	284	1012	...	287	1098	−·018	290	1191	...	November. 13	284	1280	−·022
235	273	951	...	275	1039	...	278	1125	...	281	1221	−·005	14	275	1312	...
236	264	976	...	266	1065	−·017	269	1153	−·019	272	1250	...	15	266	1343	−·028
237	255	1001	−·016	257	1091	...	260	1181	...	263	1279	...	16	257	1374	...
238	246	1025	−·017	248	1117	−·018	251	1208	...	254	1308	−·006	17	248	1404	...
239	237	1050	...	239	1144	...	242	1236	−·020	245	1338	...	18	238	1435	−·024
240	228	1075	...	230	1170	...	233	1264	...	236	1367	−·007	19	229	1466	−·025
241	218	1100	−·018	220	1196	−·019	223	1292	−·021	226	1396	−·008	20	219	1497	...
242	209	1124	...	211	1223	−·020	214	1319	...	217	1426	...	21	210	1528	...
243	202	1148	−·019	203	1248	...	203	1348	−·022	203	1456	..	22	204	1560	−·026
244	193	1175	...	194	1276		194	1377	...	194	1485	−·009	23	195	1590	...
245	183	1203	...	184	1304	−·021	184	1405	−·023	184	1514	...	24	185	1620	−·027
246	173	1230	−·020	174	1332	...	174	1434	...	174	1544	−·010	25	175	1649	...

TABLE III.—Sunrise from 18° to 22° N. latitude—*cont.*

Day of solar year.	Lat. 18° Long. −428″ = −·005 of day.			Lat. 19° Long. −460″ = −·005 of day.			Lat. 20° Long. −476″ = −·0055 of day.			Lat. 21° Long. +800″ = +·009 of day.			Eng. date.	Lat. 22° Long. −·616″ = −·007 of day.		
	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Satara.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Poona.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Wasik.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Nagpur.**		Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Baroda.**
			A.D. 1000 – 1400			**A.D.** 1000 – 1400			**A.D.** 1000 – 1400			**A.D.** 1000 – 1400				**A.D.** 1000 – 1400
247	+163	−1258	−·020	−164	−1360	−·022	+164	−1462	−·023	+164	−1573	−·010	**26**	+165	−1679	−·028
248	153	1285	−·021	154	1388	...	154	1491	−·024	154	1602	−·011	**27**	155	1709	...
249	143	1313	...	144	1416	−·023	144	1520	...	144	1631	...	**28**	145	1739	...
250	133	1340	—·022	134	1444	...	134	1548	−·025	134	1660	−·012	**29**	135	1769	−·029
251	123	1368	...	124	1472	...	124	1577	...	124	1690	...	**30**	125	1798	...
252	113	1395	−·023	114	1500	−·024	114	1605	−·026	114	1719	...	**1**	115	1828	−·030
253	103	1423	...	104	1528	...	104	1634	...	104	1748	−·013	**2**	105	1858	...
254	93	1450	...	94	1556	−·025	94	1663	−·027	94	1777	−·014	**3**	95	1888	−·031
255	83	1478	−·024	84	1584	...	84	1691	...	84	1806	...	**4**	85	1918	...
256	73	1505	..	74	1612	−·026	74	1720	...	74	1836	...	**5**	75	1947	−·032
257	63	1533	−·025	64	1640	...	64	1748	−·028	64	1865	−·015	**6**	65	1977	...
258	53	1560	...	54	1668	−·027	54	1777	...	54	1894	...	**7**	55	2007	−·033
259	43	1588	−·026	44	1696	...	44	1806	−·029	44	1923	−·016	**8**	44	2037	...
260	33	1615	...	34	1724	...	34	1834	...	34	1952	...	**9**	34	2067	−·034
261	23	1643	−·027	24	1752	−·028	24	1863	−·030	24	1982	−·017	**10**	24	2096	...
262	13	1670	...	14	1780	...	14	1891	...	14	2011	...	**11**	14	2126	...
263	2	1698	−·028	2	1808	−·029	2	1920	−·031	2	2040	−·018	**12**	2	2156	−·035
264	−10	1725	...	−10	1836	...	−10	1949	...	−10	2069	...	**13**	−11	2186	...
265	20	1753	...	20	1864	...	20	1977	−·032	20	2098	...	**14**	20	2216	−·036
266	31	1780	...	32	1892	...	32	2006	...	32	2128	...	**15**	32	2245	...
267	40	1808	...	41	1920	−·030	41	2034	...	41	2157	−·019	**16**	42	2275	...
268	50	1835	−·029	51	1948	...	51	2063	...	51	2186	...	**17**	52	2305	...
269	60	1863	...	61	1976	...	61	2092	...	61	2215	...	**18**	63	2335	...
270	69	1890	...	70	2004	...	70	2120	...	70	2244	...	**19**	73	2365	...
271	80	1918	...	81	2032	...	81	2149	...	81	2274	...	**20**	84	2394	−·037
272	90	1945	−·030	91	2060	...	91	2177	−·033	91	2303	...	**21**	94	2424	...
273	100	1973	...	101	2088	...	101	2206	...	101	2332	...	**22**	104	2454	...
274	102	2000	...	102	2116	...	104	2236	...	101	2360	−·020	**23**	101	2484	...
275	109	2008	...	109	2123	...	108	2242	...	107	2366	...	**24**	107	2489	...
276	115	2015	...	115	2130	−·031	114	2249	...	114	2372	...	**25**	114	2494	−·038
277	122	2023	...	122	2137	...	121	2255	...	120	2378	...	**26**	120	2500	...
278	129	2030	...	129	2144	−·032	128	2262	...	127	2384	...	**27**	127	2505	...
279	135	2038	−·031	135	2151	...	134	2268	−·034	133	2389	...	**28**	133	2510	...
280	142	2046	...	142	2159	..	141	2274	...	140	2395	...	**29**	140	2515	...
281	149	2053	...	149	2166	..	148	2281	...	146	2401	...	**30**	146	2520	...
282	155	2061	...	155	2173	−·033	154	2287	...	153	2407	...	**31**	153	2526	...
283	162	2068	...	162	2180	...	161	2294	...	159	2413	...	**1**	159	2531	...
284	169	2076	...	169	2187	...	168	2300	...	166	2419	...	**2**	166	2536	...
285	175	2084	−·032	175	2194	...	174	2306	...	172	2425	−·021	**3**	172	2541	−·039
286	182	2091	...	182	2201	...	181	2313	−·035	179	2431	...	**4**	179	2546	...
287	189	2099	...	189	2208	...	188	2318	...	185	2437	...	**5**	185	2552	...
288	195	2106	...	195	2215	−·034	194	2326	...	192	2443	...	**6**	192	2557	...
289	202	2114	...	202	2222	...	201	2332	...	198	2448	...	**7**	198	2562	...
290	209	2122	...	209	2230	...	208	2338	...	205	2454	...	**8**	205	2567	...
291	215	2129	−·033	215	2237	...	214	2345	...	211	2460	...	**9**	211	2572	...
292	222	2137	...	222	2244	...	221	2351	−·036	218	2466	...	**10**	218	2578	...
293	229	2144	...	229	2251	...	228	23 .8	...	224	2472	...	**11**	224	2583	−·040
294	235	2152	...	235	2258	...	234	2364	...	231	2474	...	**12**	231	2588	...
295	242	2160	...	242	2265	...	241	2370	...	238	2484	...	**13**	237	2593	...
296	249	2167	...	249	2272	...	248	2377	...	245	2490	−·022	**14**	244	2598	−·039
297	255	2175	...	255	2279	...	254	2383	−·035	252	2496	...	**15**	250	2604	...
298	262	2182	...	262	2286	...	261	2390	...	259	2502	...	**16**	257	2609	...
299	269	2190	...	269	2295	...	268	2396	...	266	2508	...	**17**	263	2614	...
300	276	2198	−·032	275	2301	−·033	274	2402	...	272	2513	...	**18**	270	2619	...
301	283	2205	...	282	2308	...	281	2409	...	278	2519	−·021	**19**	276	2624	−·038
302	290	2213	...	289	2315	...	288	2415	−·034	284	2525	...	**20**	283	2630	...
303	297	2220	...	295	2322	...	294	2422	...	290	2531	...	**21**	289	2635	...
304	304	2228	...	302	2328	...	300	2428	...	297	2536	−·020	**22**	295	2640	−·037
305	307	2203	−·031	305	2301	−·032	303	2400	...	300	2506	...	**23**	298	2609	...

Nov. / December. / January.

TABLE III.—Sunrise from 18° to 22° N. latitude—*cont.*

Day of solar year.	Lat. 18°. Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Satara.	Lat. 19° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Poona.	Lat. 20° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Nasik.	Lat. 21° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Nagpur.	Eng. date.	Lat. 22°. Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Baroda.
			Long. − 428″ = − ·005 of day.			Long. − 460″ = − ·005 of day.			Long. − 476″ = − ·0055 of day.			Long. + 800″ = + ·009 of day.				Long. − 616″ − ·007 of day.
			A.D. 1000 − 1400			A.D. 1000 − 1400			A.D. 1000 − 1400			A.D. 1000 − 1400				A.D. 1000 − 1400
306	−310	−2178	−·031	−308	−2275	−·032	−306	−2372	−·034	−303	−2477	− 020	24	−301	−2578	−·037
307	313	2152	...	311	2268	...	309	2344	−·033	306	2447	...	25	304	2546	...
308	316	2127	...	314	2221	−·031	312	2316	...	309	2417	−·019	26	307	2515	−·036
309	319	2102	−·030	317	2194	...	315	2287	...	312	2388	...	27	310	2484	...
310	322	2077	...	320	2168	...	318	2269	−·032	315	2358	...	28	313	2453	...
311	325	2052	...	323	2141	...	321	2231	...	318	2328	−·018	29	316	2422	−·035
312	328	2026	−·029	326	2114	−·030	324	2203	..	321	2298	...	30	319	2390	...
313	331	2001	...	329	2088	...	327	2175	−·031	324	2269	...	31	322	2359	...
314	334	1976	...	332	2061	...	330	2147	...	327	2239	−·017	1	325	2328	−·034
315	337	1951	...	335	2034	−·029	333	2119	...	330	2209	...	2	328	2297	...
316	340	1926	...	338	2008	...	336	2091	−·030	333	2180	...	3	331	2266	...
317	343	1900	−·028	341	1981	...	339	2063	...	336	2150	−·016	4	334	2224	−·033
318	346	1875	...	344	1954	...	342	2035	...	339	2120	...	5	337	2203	...
319	349	1850	...	347	1927	...	345	2006	...	342	2090	...	6	340	2172	...
320	352	1825	...	350	1901	−·028	343	1978	−·029	345	2061	...	7	343	2141	−·032
321	355	1808	−·027	353	1874	...	351	1950	...	348	2031	−·015	8	346	2110	...
322	358	1774	...	356	1847	...	354	1922	...	351	2001	...	9	349	2078	...
323	361	1749	...	359	1821	−·027	357	1894	...	354	1972	...	10	352	2047	−·031
324	364	1724	−·026	362	1794	...	360	1866	−·028	357	1942	−·014	11	355	2016	...
325	367	1699	...	365	1767	...	363	1838	...	360	1912	...	12	358	1985	...
326	370	1674	...	368	1741	−·026	366	1810	−·027	363	1883	−·013	13	361	1954	−·030
327	373	1648	−·025	371	1714	−·025	369	1782	...	366	1853	...	14	363	1922	−·029
328	376	1623	...	374	1687	...	372	1754	−·026	369	1823	−·012	15	365	1891	...
329	379	1698	−·024	377	1660	−·024	375	1725	−·025	371	1793	−·011	16	367	1860	−·028
330	382	1573	...	380	1634	...	377	1697	...	373	1764	...	17	369	1829	−·027
331	385	1548	−·023	383	1607	...	379	1669	−·024	375	1734	−·010	18	371	1798	..
332	388	1522	−·022	385	1580	−·023	381	1641	...	377	1704	...	19	373	1766	−·026
333	391	1497	...	387	1554	−·022	383	1613	−·023	379	1675	−·009	20	375	1735	−·025
334	392	1472	−·021	389	1527	...	385	1585	...	381	1645	−·008	21	377	1704	...
335	395	1448	...	391	1500	−·021	387	1556	−·022	383	1616	...	22	379	1672	−·024
336	395	1400	−·020	391	1450	...	387	1504	−·021	383	1562	−·007	23	379	1616	−·023
337	396	1351	...	392	1400	−·020	388	1452	−·020	384	1508	−·006	24	380	1561	...
338	396	1303	−·019	392	1350	...	388	1400	...	384	1454	−·005	25	380	1505	−·022
339	397	1255	...	393	1300	−·019	389	1348	−·019	385	1400	...	26	381	1449	−·021
340	397	1206	−·018	393	1250	−·018	389	1296	...	385	1348	...	27	381	1393	...
341	398	1158	...	394	1200	..	390	1246	−·018	386	1293	−·004	28	382	1338	−·020
342	398	1110	−·017	394	1150	−·017	390	1193	−·017	386	1239	−·003	1	382	1282	...
343	399	1026	−·016	395	1100	...	391	1141	...	387	1185	...	2	383	1226	−·019
344	399	1013	...	395	1050	−·016	391	1089	−·016	387	1131	−·002	3	383	1171	−·018
345	400	965	−·015	396	1000	...	392	1037	...	388	1077	−·001	4	384	1115	...
346	400	917	...	396	950	−·015	392	985	−·015	388	1023	...	5	384	1059	−·017
347	401	868	−·014	397	900	−·014	393	933	...	389	969	·000	6	385	1004	−·016
348	401	820	...	397	850	...	393	881	−·014	389	915	...	7	385	948	...
349	402	772	−·013	398	800	−·013	394	829	−·013	390	861	+·001	8	386	892	−·015
350	402	723	...	398	750	..	394	779	...	390	807	...	9	386	836	−·014
351	403	675	−·012	399	700	−·012	395	726	−·012	391	754	+·002	10	387	781	...
352	403	627	−·011	399	650	−·011	395	674	...	391	700	...	11	387	725	−·013
353	404	579	...	400	600	...	396	622	−·011	392	646	+·003	12	388	668	...
354	404	530	−·010	400	550	−·010	396	570	−·010	392	592	+·004	13	388	614	−·012
355	405	482	...	401	500	...	397	518	...	393	538	...	14	389	558	...
356	405	434	...	401	450	−·009	397	466	...	393	484	+·005	15	389	502	−·011
357	406	385	−·008	402	400	...	398	414	−·009	394	430	...	16	390	447	...
358	406	337	...	402	350	−·008	398	362	−·008	394	376	+·006	17	390	391	−·010
359	407	259	...	403	300	−·007	399	310	−·007	395	322	+·007	18	391	335	...
360	407	240	−·007	403	250	...	399	258	...	395	268	...	19	391	279	−·009
361	408	192	−·006	404	200	−·006	400	207	...	396	215	+·008	20	392	224	−·008
362	408	144	...	404	150	...	400	155	−·006	396	161	+·009	21	392	168	−·007
363	409	96	−·005	405	100	−·005	401	103	−·005	397	107	...	22	393	173	...
364	409	48	...	405	50	−·004	401	51	−·004	397	53	+·010	23	393	57	−·006
365	409	0	−·004	405	0	...	401	0	...	397	0	+·011	24	393	0	−·005

January. February. March.

TABLE III.—Sunrise from 23° to 27° N. latitude.

Day of solar year.	Lat. 23°	Long. −20″ = −·000 of day.	Lat. 24°	Long. −876″ = −·010 of day.	Lat. 25°	Long. +1,736″ = +·020 of day.	Lat. 26°	Long. +2,264″ = +·031 of day.	Lat. 27°	Long. +1,544′ = +·018 of day.
	Equ. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Indore.**	Equ. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Anhilwad.**	Equ. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Benares.**	Equ. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day **Patna.**	**Eng. date.**	Equ. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Oudh.**
			A.D. 1000–1400			**A.D.** 1000–1400			**A.D.** 1000–1400			**A.D.** 1000–1400				**A.D.** 1000–1400
1	−339	+58	+·003	−384	+60	−·007	−380	+62	+·023	−376	+64	+·034	**25**	−372	+66	+·022
2	337	115	...	383	119	−·006	379	123	+·024	374	128	+·035	**26**	370	132	+·023
3	335	173	+·004	381	179	...	377	185	+·025	373	192	+·036	**27**	368	198	...
4	334	230	+·005	380	238	−·005	376	247	...	372	256	+·037	**28**	367	264	+·024
5	332	288	...	378	298	−·004	374	308	+·026	370	319	+·038	**29**	365	329	+·025
6	330	346	+·006	376	358	...	372	370	+·027	368	383	...	**30**	364	395	+·026
7	329	403	+·007	374	417	−·003	370	432	...	366	447	+·039	**31**	362	461	+·027
8	326	461	...	372	477	−·002	368	494	+·028	364	511	+·040	**1**	359	527	...
9	324	518	+·008	370	536	−·001	365	555	+·029	361	575	+.041	**2**	357	593	+·028
10	322	576	+·009	368	596	...	363	617	+·030	359	639	...	**3**	355	659	+·029
11	319	634	...	365	656	·000	361	679	...	357	703	+·042	**4**	353	725	+·030
12	317	691	+·010	363	715	...	358	740	+·031	355	767	+·043	**5**	350	791	...
13	314	749	+·011	360	775	+·001	356	802	+·032	352	831	...	**6**	348	857	+·031
14	312	806	...	357	834	+·002	353	864	+·033	349	895	+·044	**7**	345	923	+·032
15	309	864	+·012	355	894	+·003	350	925	...	347	958	+·045	**8**	342	988	+·033
16	306	922	+·013	352	954	...	348	987	+·034	344	1022	+·046	**9**	340	1054	+·034
17	303	979	...	349	1013	+·004	345	1049	+·035	341	1086	+·047	**10**	338	1120	+·035
18	300	1037	+·014	346	1073	+·005	342	1111	+·036	338	1150	+ 048	**11**	336	1186	...
19	298	1094	+·015	343	1132	+·006	338	1172	+·037	336	1214	...	**12**	334	1252	+·036
20	295	1152	+·016	339	1192	...	336	1234	...	334	1278	+·049	**13**	332	1318	+·037
21	292	1210	...	335	1252	+·007	334	1296	+·038	332	1342	+·050	**14**	330	1384	...
22	289	1267	...	333	1311	...	332	1357	...	330	1406	..	**15**	328	1450	+·038
23	287	1325	+·017	331	1371	+·008	330	1419	...	328	1470	...	**16**	326	1516	...
24	284	1382	...	329	1430	...	328	1481	+·039	326	1534	+·051	**17**	324	1582	...
25	282	1440	+·018	326	1490	...	326	1542	...	324	1597	...	**18**	322	1648	+·039
26	280	1498	...	324	1550	+·009	324	1604	+·040	322	1661	+·052	**19**	320	1714	...
27	278	1555	...	322	1609	...	322	1666	...	320	1725	...	**20**	318	1780	+·040
28	276	1613	+·019	320	1669	+·010	320	1728	+·041	318	1789	...	**21**	316	1846	...
29	274	1617	...	318	1728	...	318	1789	...	316	1853	+·053	**22**	314	1912	+·041
30	322	1728	...	316	1788	...	316	1852	...	314	1916	...	**23**	312	1976	...
31	320	1762	...	314	1823	+·011	314	1888	+·042	312	1954	+·054	**24**	310	2015	+·042
32	318	1795	+·020	312	1857	...	312	1924	...	310	1932	...	**25**	308	2054	...
33	316	1827	.	310	1892	+·012	310	1960	+·043	308	2029	+·055	**26**	306	2094	+·043
34	314	1859	+·021	308	1926	..	308	1997	...	306	2067	+·056	**27**	304	2133	+·044
35	312	1892	...	305	1960	...	306	2032	+·044	304	2104		**28**	302	2172	. .
36	310	1925	...	303	1995	+·013	304	2068	...	302	2142	...	**29**	300	2211	...
37	307	1958	+·022	301	2029	+·014	302	2104	+·045	299	2180	+·057	**30**	297	2250	+·045
38	302	1990	...	299	2064	...	297	2141	...	294	2218	...	**1**	292	2290	...
39	296	2024	+·023	293	2098	...	291	2176	+·046	288	2255	+·058	**2**	286	2329	+·046
40	290	2057	+·024	287	2132	+·015	285	2212	...	283	2293	...	**3**	280	2368	...
41	284	2090	...	282	2167	...	279	2248	...	277	2331	+·059	**4**	275	2407	+·047
42	278	2123	+·025	275	2201	+·016	273	2284	+·047	271	2368	...	**5**	269	2446	...
43	272	2155	...	269	2235	...	267	2320	...	265	2406	+·060	**6**	263	2486	+·048
44	266	2187	+·026	263	2270	+·017	261	2356	+·048	259	2444		**7**	257	2525	+·049
45	259	2220	..	257	2304	...	255	2392	+·049	253	2481	+·061	**8**	251	2564	...
46	253	2253	+·027	251	2339	+·018	249	2428	...	247	2519	...	**9**	245	2603	...
47	246	2286	...	244	2373	...	243	2464	...	240	2557	+·062	**10**	239	2642	+·050
48	240	2318	...	238	2407	+·019	236	2500	+·050	234	2595		**11**	232	2682	...
49	234	2352	+·028	232	2442	...	230	2537	...	228	2632	+·063	**12**	226	2721	+·051
50	227	2385	...	225	2476	...	223	2572	+·051	221	2670	...	**13**	220	2760	+·052
51	220	2418	...	218	2411	...	217	2608	..	215	2708	+·064	**14**	213	2799	...
52	214	2451	..	212	2545	+·020	210	2644	+·052	208	2745	...	**15**	207	2838	...
53	207	2483	+·029	205	2579	+·021	203	2681	...	201	2783	...	**16**	200	2878	...
54	200	2515	...	198	2614	...	197	2716	...	195	2821	...	**17**	193	2917	...
55	193	2548	...	191	2648	...	190	2752	...	188	2858	...	**18**	186	2956	...
56	186	2581	...	184	2682	...	183	2788	...	181	2896	...	**19**	180	2995	...
57	178	2614	...	177	2717	...	175	2824	...	174	2934	...	**20**	173	3034	+·053
58	174	2646	...	174	2752	...	171	2860	...	171	2972	...	**21**	170	3074	...
59	171	2679	..	171	2786	...	168	2896	...	168	3009	...	**22**	167	3113	...
60	167	2712	..	167	2820	...	165	2932	...	165	3047	...	**23**	164	3152	...
61	163	2744	...	163	2856	...	162	2968	...	162	3084	...	**24**	161	3192	...
62	159	2740	...	159	2852	...	159	2965	...	159	3082	...	**25**	158	3190	...

March. April. May.

TABLE III.—Sunrise from 23° to 27° N. latitude—*cont.*

Day of solar year.	Lat. 23° Long. −20″ = −·000. of day			Lat. 24° Long. −876″ = −·010 of day.			Lat. 25° Long. +1736″ = +·020 of day.			Lat. 26° Long. +2264″ +·031 of day.			Lat. 27° Long. +1544″ = +·018 of day.			
	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Indore.	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Anhilwad.	Eqn. of time in seconds.	☉'s trop long. in seconds.	Total correctn. as fraction of a day. Benares.	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Patna.	Eng. date.	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Oudh.
		A.D. 1000–1400			A.D. 1000–1400			A.D. 1000–1400			A.D. 1000–1400				A.D. 1000–1400	
63	−155	+2735	+·029	−155	+2848	+·021	−156	+2962	+·052	−156	+3079	+·064	May 26	−155	+3189	+·053
64	151	2731	...	151	2844	...	150	2959	...	150	3077	...	27	150	3187	...
65	143	2726	...	142	2840	...	142	2956	...	141	3074	...	28	147	3186	...
66	134	2722	...	133	2837	...	133	2952	...	133	3072	...	29	182	3184	...
67	125	2718	...	125	2833	...	124	2949	...	124	3070	...	30	123	3182	...
68	116	2713	...	116	2830	...	115	2946	...	115	3067	...	31	115	3181	...
69	107	2709	...	106	2825	...	106	2943	...	106	3065	...	1	105	3179	...
70	98	2704	...	97	2821	...	97	2940	...	97	3062	...	2	97	3178	...
71	88	2700	...	88	2817	...	88	2937	...	88	3060	+·065	3	87	3176	...
72	79	2606	...	79	2813	...	79	2934	...	79	3058	...	4	78	3174	...
73	70	2691	...	70	2809	...	70	2931	...	70	3055	...	5	69	3173	+·054
74	61	2686	...	61	2805	...	60	2928	+·053	60	3053	...	6	60	3171	...
75	53	2682	...	53	2801	...	52	2925	...	52	3050	...	7	52	3170	...
76	42	2678	+·030	42	2797	...	42	2921	...	42	3048	...	8	41	3168	...
77	33	2674	...	33	2794	...	33	2918	...	32	3046	...	9	32	3166	...
78	24	2669	...	24	2790	...	24	2915	...	24	3043	...	10	24	3165	...
79	15	2665	...	15	2786	...	14	2912	...	14	3041	...	11	14	3163	...
80	5	2660	...	5	2782	...	5	2909	...	5	3038	...	12	5	3162	...
81	+4	2656	...	+4	2778	...	+4	2906	...	+ 4	3036	...	13	+ 4	3160	...
82	13	2652	...	13	2774	...	13	2903	...	13	3034	...	14	13	3158	...
83	23	2647	...	23	2770	...	22	2900	+·052	22	3031	...	June 15	22	3157	...
84	32	2643	...	32	2766	...	32	2897	...	32	3029	...	16	32	3155	...
85	42	2638	...	42	2762	...	41	2894	...	41	3026	...	17	41	3154	...
86	51	2634	+·029	50	2758	...	50	2890	...	50	3024	...	18	50	3152	+·058
87	60	2630	...	59	2755	+·020	59	2887	...	59	3022	+·064	19	59	3150	...
88	69	2625	...	69	2751	...	69	2884	...	68	3019	+·063	20	68	3149	+·052
89	78	2621	+·028	78	2747	...	78	2881	+·051	78	3017	...	21	77	3147	...
90	87	2616	...	87	2743	...	87	2878	...	87	3014	...	22	86	3146	...
91	107	2612	...	107	2740	...	108	2876	...	108	3012	+·062	23	108	3144	...
92	117	2581	...	118	2709	+·019	118	2844	...	118	2979	...	24	119	3111	+·051
93	127	2551	+·027	128	2678	...	128	2812	...	128	2947	...	25	129	3077	...
94	187	2520	...	138	2647	...	138	2780	+·050	138	2914	...	26	139	3044	...
95	147	2490	...	148	2616	+·018	148	2748	...	148	2882	+·061	27	149	3011	...
96	157	2459	...	158	2584	...	158	2717	+·049	158	2849	...	28	159	2977	+·050
97	167	2428	...	168	2553	...	168	2685	...	168	2817	...	29	169	2944	...
98	177	2398	...	177	2522	...	178	2653	...	178	2784	...	30	179	2911	...
99	187	2368	+·026	187	2491	+·017	188	2621	...	188	2752	+·060	July 1	189	2878	...
100	196	2337	...	197	2460	...	197	2589	...	198	2719	...	2	198	2844	+·049
101	206	2306	...	206	2429	...	207	2557	+·048	207	2687	...	3	208	2811	...
102	215	2275	...	216	2398	...	217	2525	...	217	2654	...	4	218	2778	...
103	225	2245	+·025	226	2367	...	226	2493	...	227	2622	...	5	227	2744	...
104	235	2214	...	235	2336	+·016	236	2461	...	236	2589	...	6	237	2711	+·048
105	244	2184	...	244	2305	...	245	2429	+·047	246	2557	...	7	246	2678	...
106	253	2153	+·024	254	2273	...	254	2397	...	255	2524	...	8	256	2644	+·047
107	262	2122	...	263	2242	...	263	2366	...	264	2492	+·059	9	265	2611	...
108	271	2092	...	272	2211	+·015	273	2334	...	273	2458	...	10	274	2578	...
109	280	2061	...	281	2180	...	282	2302	+·046	283	2427	...	11	283	2545	...
110	291	2031	+·023	290	2149	...	291	2270	...	292	2394	+·058	12	292	2511	+·046
111	298	2000	...	299	2118	...	299	2238	...	300	2362	...	13	301	2478	...
112	307	1969	...	308	2087	+·014	308	2206	...	309	2329	...	14	310	2445	...
113	315	1939	...	316	2056	...	317	2174	+·045	318	2297	...	15	319	2411	...
114	324	1908	+·022	325	2025	...	326	2142	...	327	2264	+·057	16	328	2378	+·045
115	333	1878	...	333	1994	+·013	334	2110	+·044	335	2232	...	July 17	336	2345	...
116	341	1847	...	342	1963	...	343	2078	...	344	2199	...	18	344	2311	...
117	349	1816	...	350	1931	...	351	2047	...	352	2167	+·056	19	353	2278	+·044
118	358	1786	+·021	358	1900	...	359	2015	...	360	2134	...	20	361	2245	...
119	365	1755	...	366	1869	...	367	1983	+·043	368	2102	+·055	21	369	2212	...
120	373	1725	+·020	374	1838	+·012	375	1951	...	376	2069	...	22	377	2178	+·043
121	382	1694	...	385	1807	...	387	1919	...	389	2037	...	23	391	2145	...
122	390	1664	...	393	1776	+·011	395	1888	+·042	397	2004	...	24	400	2112	...
123	397	1631	...	400	1742	...	402	1852	...	404	1966	+·054	25	407	2073	+·042
124	405	1599	...	408	1708	...	410	1816	...	412	1929	...	26	415	2034	...
125	412	1566	+·019	415	1673	+·010	417	1780	+·041	419	1891	+·053	27	423	1994	+·041

TABLE III.—Sunrise from 23° to 27° N. latitude—*cont.*

Day of solar year.	Lat. 23°	Long. −20″ = −·000 of day.	Lat. 24°	Long. −876″ = −·010 of day.	Lat. 25°	Long. +1,736″ = +·020 of day.	Lat. 26.	Long. +2,264″ = +·031 of day.	Lat. 27°	Long. +1,544″ = +·018 of day.
	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Indore.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Anhilwad.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Benares.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Patna.**	Eng. date.	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Oudh.**
			A.D. 1000–1400			A.D. 1000–1400			A.D. 1000–1400			A.D. 1000–1400				A.D. 1000–1400
126	+420	+1534	+·019	+422	+1639	+·010	+424	+1744	+·040	+426	+1853	+·053	28	+429	+1955	+·041
127	427	1501	+·018	429	1604	...	431	1708	...	433	1815	...	July 29	436	1916	...
128	434	1469	...	436	1570	...	438	1673	...	440	1778	+·052	30	443	1877	+·040
129	441	1436	...	443	1536	+·009	445	1637	...	447	1740	...	31	450	1838	...
130	448	1404	...	450	1502	...	452	1601	...	454	1702	...	1	457	1798	+·039
131	454	1371	+·017	456	1467	+·008	458	1565	+·039	460	1665	+·051	2	463	1759	...
132	460	1339	...	462	1433	...	464	1529	..	466	1627	...	3	469	1720	...
133	467	1306	...	469	1399	...	471	1493	...	473	1589	+·050	4	476	1681	...
134	473	1274	..	475	1364	...	477	1457	+·038	479	1552	...	5	482	1642	+·038
135	479	1241	+·016	481	1330	+·007	483	1421	...	485	1514	..	6	488	1602	...
136	485	1209	...	487	1296	...	489	1385	...	491	1476	+·049	7	494	1563	+·037
137	490	1176	...	493	1261	+·006	495	1349	+·037	497	1438	...	8	500	1524	...
138	496	1144	+·015	499	1227	...	501	1314	...	503	1401	...	9	506	1485	+·036
139	502	1111	...	505	1193	...	507	1278	+·036	509	1363	+·048	10	512	1446	...
140	507	1079	...	510	1159	+·005	512	1242	...	514	1325	...	11	517	1406	...
141	512	1046	+·014	515	1124	...	517	1206	...	519	1288	...	12	522	1367	...
142	517	1014	...	520	1090	...	522	1170	...	524	1250	+·047	13	527	1328	+·035
143	522	981	...	525	1056	...	527	1134	+·035	529	1212	...	14	532	1289	...
144	527	949	...	530	1021	+·004	532	1098	...	534	1175	...	15	537	1250	+·034
145	531	916	...	535	987	...	537	1062	...	539	1137	+·046	16	542	1210	...
146	536	884	+·013	539	953	...	541	1026	+·034	543	1099	...	August 17	546	1171	...
147	540	851	...	542	918	...	545	990	...	547	1061	...	18	550	1132	+·033
148	544	819	...	546	884	+·003	548	955	...	552	1024	+·045	19	552	1093	...
149	546	786	...	548	850	...	547	919	...	554	986	...	20	554	1054	...
150	547	754	+·012	550	816	...	548	883	+·033	555	948	...	21	556	1014	+·032
151	548	721	...	551	781	...	550	847	...	556	911	+·044	22	558	975	...
152	549	688	...	552	748	+·002	551	812	..	558	872	...	23	560	936	...
153	550	656	...	553	724		553	786	+·032	559	844	...	24	562	906	...
154	551	644	+·011	555	700	...	554	760	...	560	816	..	25	564	876	+·031
155	552	621	...	556	676	+·001	555	733	...	561	788	+·043	26	566	845	...
156	553	599	...	557	652	...	556	707	+·031	563	760	...	27	568	815	...
157	554	577	+·010	558	627	...	558	681	...	565	731	...	28	570	785	+·030
158	555	555	...	560	603	...	560	655	...	567	703	...	29	572	755	...
159	557	533	...	562	579	...	562	629	...	570	675	+·042	30	574	725	...
160	559	510	...	564	555	...	564	602	...	572	647	...	31	576	694	+·029
161	561	488	...	566	531	·000	566	576	...	574	619	+·041	1	578	664	...
162	562	466	...	567	507	...	568	550	+·030	575	591	...	2	579	634	...
163	564	444	...	569	483	...	570	524	...	577	562	...	3	581	604	+·028
164	566	422	+·009	571	459	−·001	572	498		579	535	...	4	583	574	...
165	567	399	...	572	435	...	574	471	+·029	580	507	+·040	5	584	543	...
166	567	377	...	572	411	...	576	445	...	580	479	...	6	584	513	+·027
167	568	355	+·008	573	386	...	577	419	...	581	450	...	September 7	585	483	...
168	569	333	...	574	362	−·002	578	393	+·028	582	422	+·039	8	586	453	...
169	570	311	...	575	338	...	579	367	...	583	394	...	9	587	423	+·026
170	570	288	...	575	314	...	579	340	...	583	366	...	10	587	392	...
171	570	266	+·007	575	290	−·003	579	314	+·027	583	338	+·038	11	587	362	...
172	570	244	...	575	266		579	288	...	583	310	...	12	587	332	+·025
173	570	222	...	575	242	...	579	262	...	583	282	...	13	587	302	...
174	570	200	...	575	218	...	579	236	+·026	583	254	...	14	587	272	+·024
175	570	177	+·006	575	194	−·004	579	209	...	583	226	+·037	15	587	241	...
176	570	155	...	575	170	...	579	183	...	583	198	...	16	587	211	...
177	569	133	+·005	574	145	...	578	157	...	582	169	+·036	17	586	181	+·023
178	568	111	...	573	121	−·005	577	131	+·025	581	141	...	18	585	151	...
179	567	89	...	572	97	...	576	105	..	580	113		19	584	121	...
180	566	66	...	571	73	...	575	78	...	579	85	+·035	20	583	90	+·022
181	564	44	...	569	49	..	573	52	+·024	577	57	...	21	581	60	...
182	563	22	+·004	568	25	−·006	572	26	...	576	29	..	22	580	30	...
183	562	0	...	566	0	...	570	0		575	0	+·034	23	579	0	+·021
184	560	−23	.	564	−25	...	568	−27	+·023	573	−29	...	24	577	−31	...
185	558	46	...	562	50	−·007	566	54	...	571	58	...	25	575	62	...
186	556	69	+·003	560	75	...	564	81	...	569	87	+·033	26	573	94	+·020

TABLE III.—Sunrise from 23° to 27° N. latitude—*cont.*

Day of solar year.	Lat. 23°		Long. −20″ = −·000 of day.	Lat. 24°		Long. −·876″ = −·010 of day.	Lat. 25°		Long. +1,736″ = +·020 of day.	Lat. 26°		Long. +2,264″ = +·031 of day.	Lat. 27°		Long. +1,544″ = +·018 of day.
	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Indore.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Anhilwad.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Benares.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Patna.**	**Eng. date.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Oudh.**
			A.D. 1000–1400.			**A.D.** 1000–1400.			**A.D.** 1000–1400.			**A.D.** 1000–1400.			**A.D.** 1000–1400.
187	+554	−92	+·003	+558	−100	−·007	+562	−108	+·022	+567	−116	+·033	Sep. **27**	+571	−125	+·020
188	551	114	...	555	124	...	559	135	...	564	145	...	**28**	568	156	+·019
189	548	137	...	552	149	−·008	556	163	...	561	175	+·032	**29**	565	187	...
190	545	160	+·002	549	174	...	553	190	+·021	558	204	...	**30**	562	218	...
191	542	183	...	546	199	...	550	217	...	555	232	...	**1**	559	250	+·018
192	539	206	...	543	224	−·009	547	244	...	552	262	+·031	**2**	556	281	...
193	536	229	...	540	249	...	543	271	...	548	291	...	**3**	552	312	...
194	533	252	+·001	537	274	..	540	298	+·020	545	320	...	**4**	549	343	+·017
195	530	275	...	534	299	−·010	536	325	...	541	349	+·030	**5**	545	374	...
196	526	298	...	530	324	..	532	352	...	537	378	...	**6**	541	406	...
197	522	321	·000	526	349	−·011	528	379	+ 019	533	407	...	**7**	537	437	+·016
198	518	343	...	522	373	...	524	406	...	529	436	+·029	**8**	533	468	...
199	514	366	−·001	518	398	...	520	434	+·018	525	466	...	**9**	529	499	+·015
200	509	389	...	513	423	...	515	461	...	520	495	+·028	**10**	524	530	...
201	505	412	..	509	448	−·012	511	488	...	515	524	...	**11**	519	562	...
202	501	435	...	505	473	...	507	515	+ 017	511	553	...	**12**	515	593	+·014
203	496	458	−·002	500	498	...	502	542	..	506	582	+·027	**13**	510	624	+·018
204	491	481	...	495	528	−·013	497	569	+ 016	500	611	...	**14**	504	655	...
205	486	504	...	490	548	...	492	596	...	495	640	+·026	**15**	499	686	...
206	481	527	−·003	485	573	−·014	487	623	...	490	669	...	**16**	494	718	+·012
207	477	550	−·004	481	598	...	483	650	+ 015	486	698	+·025	October. **17**	490	749	...
208	472	572	...	476	622	−·015	478	677	+·014	480	727	...	**18**	484	780	+·011
209	466	595	...	470	647	...	472	705	...	474	757	+·024	**19**	478	811	...
210	461	618	−·005	465	672	−·016	467	732	+·018	468	786	...	**20**	472	842	+·010
211	455	641	...	459	697	...	461	759	...	462	815	+·023	**21**	466	874	+·009
212	450	664	−·006	454	722	−·017	455	786	...	458	844	...	**22**	462	905	+·008
213	446	688	...	450	748	...	452	812	+·012	455	872	+·022	**23**	458	936	...
214	445	721	...	447	782	−·018	449	848	...	452	910	...	**24**	455	975	+·007
215	441	758	−·007	444	817	...	446	884	+·011	449	947	+·021	**25**	452	1014	...
216	434	785	−·003	437	851	−·019	439	920	...	442	985	+·020	**26**	445	1054	...
217	427	818	...	430	885	...	432	956	+·010	435	1023	...	**27**	438	1093	+·006
218	420	850	...	423	919	...	425	991	...	428	1060	...	**28**	431	1132	...
219	412	883	−·009	415	954	−·020	417	1027	+·009	420	1098	+·019	**29**	423	1171	+·005
220	405	915	−·010	408	988	...	410	1063	...	413	1136	...	**30**	416	1210	...
221	397	948	...	400	1022	−·021	402	1099	+·008	405	1174	+·018	**31**	408	1250	+·004
222	389	980	...	392	1057	...	394	1135	...	397	1211	...	**1**	400	1289	...
223	381	1013	−·011	384	1091	−·022	386	1171	...	389	1249	+·017	**2**	392	1328	+·003
224	378	1045	...	376	1125	...	378	1207	...	381	1287	+·016	**3**	384	1367	+·002
225	365	1078	...	368	1160	...	370	1243	+·006	373	1324	...	**4**	376	1406	
226	357	1110	−·012	360	1194	...	362	1279	...	365	1362	...	**5**	368	1446	+·001
227	348	1143	...	351	1228	−·023	353	1315	+·005	356	1400	+·015	**6**	359	1485	...
228	340	1175	−·013	343	1262	−·024	345	1350	+·004	348	1437	+·014	**7**	351	1524	·000
229	332	1208	...	335	1297	−·025	337	1386	...	340	1475	...	**8**	343	1563	...
230	323	1240	−·014	326	1331	..	328	1422	...	331	1513	+·013	**9**	334	1602	−·001
231	314	1273		317	1365	−·026	319	1458	+·003	322	1551	...	**10**	325	1642	
232	306	1305	−·015	309	1400	...	311	1494	...	314	1588	+·012	**11**	317	1681	−·002
233	297	1338	...	300	1434	−·027	302	1530	...	305	1626	...	**12**	308	1720	−·003
234	287	1370	−·016	290	1468	...	292	1566	..	295	1664	+·010	**13**	298	1759	...
235	278	1403	...	281	1503	...	282	1602	+·001	286	1701	...	**14**	289	1798	...
236	269	1435	−·017	272	1537	−·028	274	1638	...	277	1739	+·009	**15**	280	1838	−·004
237	260	1468	...	263	1571	−·029	265	1674	·000	268	1777	...	November. **16**	271	1877	...
238	251	1500	−·018	254	1605	...	256	1709	−·001	259	1814	...	**17**	262	1916	−·005
239	241	1533	...	245	1640	...	246	1745	...	249	1852	...	**18**	252	1955	...
240	232	1565	...	236	1674	−·030	237	1781	...	240	1890	+·008	**19**	243	1994	−·006
241	222	1598	−·019	226	1708	−·031	227	1817	−·002	230	1928	...	**20**	233	2034	...
242	213	1630	−·020	217	1743	...	218	1853	...	221	1965	+·007	**21**	224	2073	−·007
243	205	1664	...	205	1776	...	206	1888	−·003	206	2004	...	**22**	207	2113	−·008
244	196	1695	...	196	1807	−·032	197	1920	...	197	2036	+·006	**23**	198	2145	...
245	186	1725	−·021	186	1838	−·033	187	1952	−·004	187	2069	...	**24**	188	2179	−·009
246	176	1756	...	176	1869	...	177	1984	...	177	2101	+·005	**25**	178	2212	...

TABLE III.—Sunrise from 23° to 27° N. latitude—*cont.*

Day of solar year.	Lat. 23°	Long. −20″ = −·000 of day.	Lat. 24°	Long. −876″ = −·010 of day.	Lat. 25°	Long. +1,736″ = +·020 of day.	Lat. 26°	Long. +2,264″ = +·031 of day.	Lat. 27°	Long. +1,544″ = +·018 of day.
	Eqn. of time in seconds.	☉'s trop long. in seconds.	Total correctn. as fraction of a day. **Indore.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Anhilwad.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Benares.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Patna.**	**Eng. date.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Oudh.**
			A.D. 1000—1400.			**A.D.** 1000—1400.			**A.D.** 1000—1400.			**A.D.** 1000—1400.				**A.D.** 1000—1400.
247	+166	−1786	−·022	+166	−1900	−·033	+167	−2016	−·005	+167	−2134	+·005	**26**	+168	−2245	−·010
248	156	1817	...	156	1931	−·034	157	2047	...	157	2166	+·004	**27**	158	2278	...
249	146	1848	−·023	146	1963	−·035	147	2079	...	147	2199	...	**28**	148	2312	...
250	136	1878	...	136	1994	...	137	2111	−·006	137	2231	+·003	**29**	138	2345	−·011
251	126	1909	−·024	126	2025	...	127	2143	−·007	127	2264	...	**30**	128	2378	−·012
252	116	1939	...	116	2056	−·036	117	2175	...	117	2296	+·002	**1**	118	2412	...
253	106	1970	−·025	106	2087	...	107	2207	...	107	2329	...	**2**	108	2445	...
254	96	2001	...	96	2118	−·037	97	2239	−·008	97	2361	+·001	**3**	98	2478	−·013
255	86	2031	−·026	86	2149	...	87	2271	−·009	87	2394	...	**4**	88	2512	−·014
256	76	2062	...	76	2180	−·038	77	2303	...	77	2426	·000	**5**	78	2545	...
257	66	2092	...	66	2211	−·039	67	2335	...	67	2459	...	**6**	68	2578	...
258	56	2123	−·027	56	2242	...	57	2366	−·010	57	2491	−·001	**7**	58	2612	−·015
259	45	2154	−·028	45	2274	−·040	46	2398	−·011	46	2524	...	**8**	47	2645	...
260	35	2184	...	35	2305	...	36	2430	...	36	2556	...	**9**	37	2678	−·016
261	25	2215	...	25	2336	...	26	2462	...	26	2589	−·002	**10**	27	2711	...
262	15	2245	−·029	15	2367	−·041	16	2494	−·012	16	2621	...	**11**	17	2745	−·017
263	2	2276	−·030	2	2398	...	2	2526	−·013	2	2654	−·003	**12**	2	2778	−·018
264	− 11	2307	...	−11	2429	...	−11	2558	...	−11	2686	...	**13**	−11	2811	...
265	20	2337	...	21	2460	...	21	2590	...	21	2719	...	**14**	21	2845	...
266	33	2368	...	33	2491	...	34	2622	...	34	2751	...	**15**	35	2878	...
267	43	2398	...	43	2522	...	44	2654	...	44	2784	−·004	**16**	45	2911	...
268	53	2429	...	53	2553	...	54	2685	...	54	2816	...	**17**	55	2944	...
269	64	2460	...	64	2585	...	65	2717	...	65	2849	...	**18**	66	2978	...
270	74	2490	...	74	2616	−·042	75	2749	−·014	75	2881	−·005	**19**	76	3011	−·019
271	85	2521	−·031	85	2647	−·043	86	2781	...	86	2914	...	**20**	87	3044	...
272	95	2551	...	95	2678	...	96	2813	...	96	2946	...	**21**	97	3078	...
273	100	2582	...	100	2709	...	100	2845	...	100	2979	...	**22**	100	3111	...
274	101	2612	...	101	2740	...	101	2878	...	101	3012	...	**23**	101	3144	...
275	107	2616	...	107	2744	...	107	2879	...	107	3014	..	**24**	107	3146	...
276	113	2621	...	113	2748	...	113	2882	...	113	3017	...	**25**	113	3147	...
277	120	2625	...	120	2752	...	119	2885	...	119	3019	...	**26**	119	3149	...
278	126	2630	...	126	2756	...	126	2888	−·015	125	3022	...	**27**	125	3150	...
279	132	2634	−·032	132	2759	−·044	132	2891	...	131	3024	...	**28**	131	3152	...
280	139	2638	...	139	2763	...	138	2895	...	137	3026	...	**29**	137	3154	...
281	145	2643	...	145	2767	...	144	2898	...	143	3029	...	**30**	143	3155	..
282	151	2647	...	151	2771	−·045	151	2901	...	149	3031	...	**31**	149	3157	...
283	158	2652	...	158	2775	...	157	2904	...	155	3034	...	**1**	155	3158	...
284	164	2656	...	164	2779	...	163	2907	−·016	161	3036	...	**2**	161	3160	..
285	170	2660	−·033	170	2783	...	169	2910	...	167	3038	...	**3**	167	3162	...
286	177	2665	...	177	2787	...	176	2913	...	173	3041	−·006	**4**	173	3163	...
287	183	2669	...	183	2791	...	182	2916	...	179	3043	...	**5**	179	3165	...
288	189	2674	...	189	2795	...	188	2919	...	185	3046	...	**6**	185	3166	...
289	196	2678	−·034	196	2798	...	194	2922	...	191	3048	...	**7**	191	3168	...
290	202	2682	...	202	2802	...	201	2926	..	197	3050	...	**8**	197	3170	...
291	208	2687	...	208	2806	...	207	2929	...	203	3053	..	**9**	203	3171	...
292	215	2691	...	215	2810	...	213	2932	...	209	3055	...	**10**	209	3173	...
293	221	2696	...	221	2814	...	219	2935	..	215	3058	...	**11**	215	3174	...
294	227	2700	...	227	2818	...	226	2938	−·017	221	3060	−·007	**12**	221	3176	...
295	234	2704	...	234	2822	...	232	2941	...	227	3062	...	**13**	227	3178	−·020
296	240	2709	...	240	2826	...	238	2944	−·016	233	3065	...	**14**	233	3179	...
297	246	2713	−·033	246	2830	...	244	2947	...	239	3067	−·006	**15**	239	3181	...
298	253	2718	...	253	2834	−·044	251	2950	−·015	245	3070	...	**16**	245	3182	...
299	259	2722	...	259	2838	...	257	2953	..	251	3072	−·005	**17**	251	3184	−·019
300	265	2726		265	2841	...	263	2957	...	258	3074	...	**18**	257	3186	...
301	272	2731	−·032	272	2845	...	269	2960	...	265	3077	..	**19**	263	3187	...
302	278	2735	...	278	2849	−·043	276	2963	−·014	272	3079	−·004	**20**	270	3189	...
303	284	2740	....	284	2853	...	282	2966	...	279	3082	...	**21**	277	3190	−·018
304	292	2744	−·031	290	2856	−·042	288	2968	−·013	285	3084	−·008	**22**	283	3192	...
305	294	2711	...	292	2822	...	290	2932	...	287	3046	...	**23**	285	3153	−·017

Nov. Dec. Jan.

TABLE III.—Sunrise from 23° to 27° latitude—*cont.*

Day of solar year.	Lat. 23° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Indore.	Lat. 24° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Anhilwad.	Lat. 25° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Benares.	Lat. 26° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Patna.	Lat. 27° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. Oudh.
			Long. − 20″ = − ·000 of day.			Long. − 876″ = − ·010 of day.			Long. +1,736″ = + ·020 of day.			Long. +2,264″ = + ·031 of day.			Long. +1,544″ = + ·018 of day.
Eng. date.			A.D. 1000–1400.			A.D. 1000–1400.			A.D. 1000–1400.			A.D. 1000–1400.			A.D. 1000–1400.
306	−297	−2678	−·031	−295	−2787	−·042	−293	−2896	−·013	−290	−3009	−·003			
307	300	2646	...	297	2753	...	295	2860	−·012	292	2971	−·002			
308	303	2613	−·030	300	2718	−·041	298	2824	...	295	2933	...			
309	305	2580	...	302	2684	...	300	2788	...	297	2895	−·001			
310	308	2547	...	305	2650	...	303	2752	...	300	2858	...			
311	311	2514	−·029	307	2615	−·040	305	2716	−·011	302	2820	...			
312	314	2482	...	310	2581	...	308	2680	..	305	2782	...			
313	316	2449	−·028	312	2546	−·039	310	2644	−·010	307	2745	...			
314	319	2416	...	315	2512	...	313	2608	...	310	2707	·000			
315	322	2383	...	317	2478	...	315	2572	−·009	312	2669	...			
316	325	2350	−·027	320	2443	−·038	318	2536	...	315	2632	+·001			
317	327	2318	...	322	2409	...	320	2500	...	317	2594	...			
318	330	2285	...	325	2374	−·037	323	2464	−·008	320	2556	+·002			
319	333	2252	−·026	327	2340	...	325	2428	...	322	2518	...			
320	336	2219	...	330	2306	...	328	2392	−·007	325	2481	...			
321	338	2196	...	332	2271	−·036	330	2356	...	327	2443	+·003			
322	341	2154	−·025	335	2237		333	2320	−·006	330	2405	...			
323	344	2121	...	337	2202	−·035	335	2284	...	332	2368	+·004			
324	347	2088	...	340	2168	...	338	2248	...	335	2330	...			
325	349	2055	−·024	342	2134	−·034	340	2212	−·005	337	2292	+·005			
326	352	2022	−·023	345	2099	...	343	2176	...	340	2255	...			
327	355	1990	...	347	2065	...	345	2140	−·004	342	2217	+·006			
328	358	1957	−·022	350	2030	...	348	2104	−·003	345	2179	+·007			
329	360	1924	...	353	1996	−·032	350	2068	...	347	2141	+·008			
330	363	1891	−·021	356	1962	−·031	353	2032	−·002	350	2104	...			
331	366	1858	−·020	359	1927	...	355	1996	−·001	352	2066	+·009			
332	369	1826	−·019	362	1893	−·030	358	1960	...	355	2028	+·010			
333	371	1793	...	365	1858	−·029	361	1924	·000	357	1991	+·011			
334	374	1760	−·018	368	1824	...	364	1888	+·001	360	1953	...			
335	376	1728	−·017	371	1788	−·028	367	1852	+·002	363	1916	+·012			
336	376	1670	...	371	1728	−·027	367	1790	...	363	1852	+·013			
337	377	1613	−·016	372	1669	...	368	1729	+·003	364	1788	+·014			
338	377	1555	..	372	1609	−·026	368	1667	+·004	364	1724	...			
339	378	1498	−·015	373	1550	−·025	369	1605	+·005	365	1660	+·015			
340	378	1440	−·014	373	1490	−·024	369	1543	...	365	1596	+·016			
341	379	1382	...	374	1430	...	370	1482	+·006	366	1533	+·017			
342	379	1325	−·013	374	1371	−·023	370	1420	+·007	366	1469	...			
343	380	1267	−·012	375	1311	−·022	371	1358	+·008	367	1405	+·018			
344	380	1210	−·011	375	1252	...	371	1297	...	367	1341	+·019			
345	381	1152	...	376	1192	−·021	372	1235	+·009	368	1277	+·020			
346	381	1094	−·010	376	1132	−·020	372	1173	..	368	1213	...			
347	382	1037	..	377	1073	...	373	1112	+·010	369	1149	+·021			
348	382	979	−·009	377	1013	−·019	373	1050	+·011	369	1085	+·022			
349	383	922	−·008	378	954	−·018	374	988	+·012	370	1021	+·023			
350	383	864	−·007	378	894	...	374	926	...	370	957	...			
351	384	806	...	379	834	−·017	375	865	+·013	371	894	+·024			
352	384	749	−·006	379	775	−·016	375	803	+·014	371	829	+·025			
353	385	691	−·005	380	715	−·015	376	741	+·015	372	766	...			
354	385	634	...	380	656	...	376	670	...	372	702	+·026			
355	386	576	−·004	381	596	−·014	377	618	+·016	373	638	+·027			
356	386	518	−·003	381	536	−·013	377	556	+·017	373	574	+·028			
357	387	461	...	382	477	...	378	495	...	374	510	...			
358	387	403	−·002	382	417	−·012	378	433	+·018	374	446	+·029			
359	388	346	...	383	358	−·011	379	371	+·019	375	382	+·030			
360	388	288	−·001	383	298	..	379	309	+·020	375	318	+·031			
361	389	230	...	384	238	−·010	380	248	..	376	255	...			
362	389	173	·000	384	179	−·009	380	186	+·021	376	191	+·032			
363	390	115	+·001	385	119	...	381	125	+·022	377	127	+·033			
364	390	58	...	385	60	−·008	381	63	...	377	64	...			
365	391	0	+·002	386	0	...	382	0	...	378	0	+·034			
306													24	288	−3114	−·017
307													25	290	3074	−·016
308													26	293	3035	...
309													27	295	2996	−·015
310													28	298	2957	−·014
311													29	300	2918	...
312													30	303	2878	−·013
313													31	305	2839	...
314													1	308	2800	...
315													2	310	2761	...
316													3	313	2722	−·012
317													4	315	2682	−·011
318													5	318	2643	...
319													6	320	2604	−·010
320													7	323	2565	...
321													8	325	2526	−·009
322													9	328	2486	...
323													10	330	2447	...
324													11	333	2408	−·008
325													12	335	2369	−·007
326													13	338	2330	...
327													14	340	2290	−·006
328													15	343	2251	...
329													16	345	2212	...
330													17	348	2173	−·005
331													18	350	2134	−·004
332													19	353	2094	...
333													20	355	2055	−·003
334													21	357	2016	−·002
335													22	359	1976	−·001
336													23	359	1910	...
337													24	360	1844	·000
338													25	360	1778	+·001
339													26	361	1712	+·002
340													27	361	1646	+·003
341													28	362	1581	...
342													1	362	1515	+·004
343													2	363	1449	+·005
344													3	363	1383	+·006
345													4	364	1317	...
346													5	364	1251	+·007
347													6	365	1185	+·008
348													7	365	1119	+·009
349													8	366	1053	...
350													9	366	987	+·010
351													10	367	922	+·011
352													11	367	856	+·012
353													12	368	790	...
354													13	368	724	·013
355													14	369	658	+·014
356													15	369	592	+·015
357													16	370	526	+·016
358													17	370	460	+·017
359													18	371	394	...
360													19	371	328	+·018
361													20	372	263	+·019
362													21	372	197	...
363													22	373	131	+·020
364													23	373	65	+·021
365													24	374	0	...

TABLE III.—Sunrise from 28° to 32° N. latitude.

Day of solar year.	Lat. 28° Long. + 460″ = + 005 of day.			Lat. 29° Long. + 352″ = + ·004 of day.			Lat. 30° Long. + 152″ = + ·002 of day.			Lat. 31° Long. + 332″ = + ·004 of day.			Lat. 32° Long. − 348″ = − ·004 of day.			Day of solar year.
	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. Mathura.	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. Delhi.	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. Patiala.	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. Simla.	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. Lahore.	
	A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.				A.D. 1000—1400.		
1	−367	+ 68	+ ·009	−362	+ 70	+ ·009	−357	+ 72	+ ·007	−353	+ 75	+ ·009				
2	364	136	+ ·010	360	140	+ ·010	355	145	+ ·008	351	149	+ ·010				
3	363	204	+ ·011	359	210	+ ·011	354	217	+ ·009	350	224	+ ·011				
4	361	272	+ ·012	358	280	...	353	290	+ ·010	348	298	+ ·012				
5	360	341	...	356	351	+ ·012	351	362	+ ·011	347	373	+ ·013				
6	359	409	+ 018	354	421	+ ·013	349	434	...	345	447	...				
7	357	477	+ ·014	352	491	+ ·014	348	507	+ ·012	343	522	+ ·014				
8	355	545	+ ·015	351	561	+ ·015	346	580	+ ·013	341	596	+ ·015				
9	353	613	...	348	631	...	344	652	+ ·014	339	671	+ ·016				
10	351	681	+ ·016	346	701	+ ·016	342	724	+ ·015	337	745	+ ·017				
11	348	749	+ ·017	344	771	+ ·017	339	796	+ ·016	335	820	+ ·018				
12	346	817	+ ·018	342	841	...	337	869	...	333	894	+ ·019				
13	344	885	+ ·019	339	911	+ ·018	335	941	+ ·017	331	969	+ ·020				
14	341	953	+ ·020	337	981	+ ·019	332	1014	+ ·018	328	1043	...				
15	338	1022	+ ·021	334	1051	+ ·020	329	1086	+ ·019	325	1118	+ ·021				
16	335	1090	+ ·022	331	1122	+ ·021	327	1158	+ ·020	323	1192	+ ·022				
17	333	1158	...	328	1192	·022	324	1231	+ ·021	320	1267	+ ·023				
18	330	1226	+ ·023	324	1262	+ ·023	322	1303	...	318	1341	+ ·024				
19	327	1294	+ ·024	322	1332	+ ·024	320	1376	+ ·022	316	1416	+ ·025				
20	325	1362	...	320	1402	...	318	1448	+ ·023	314	1490	+ ·026				
21	323	1430	+ ·025	318	1472	+ ·025	316	1520	...	312	1565	...				
22	321	1498	...	316	1542	...	314	1593	+ ·024	310	1639	+ ·027				
23	319	1566	+ ·026	314	1612	+ ·026	312	1665	...	308	1714	...				
24	317	1634	...	312	1682	...	310	1738	+ ·025	306	1788	+ ·028				
25	315	1703	+ ·027	310	1752	+ ·027	308	1810	...	304	1863	...				
26	313	1771	...	308	1822	...	306	1882	+ ·026	302	1937	+ ·029				
27	311	1839	+ ·028	306	1893	+ ·028	304	1955	...	300	2012	+ ·030				
28	309	1907	...	304	1963	+ ·029	302	2027	+ ·027	298	2086	...				
29	307	1975	+ 029	302	2033	...	300	2099	+ ·028	296	2161	+ ·031				
30	305	2044	...	300	2104	+ ·030	298	2172	+ ·029	294	2236	+ ·032				
31	303	2065	+ ·030	298	2147	...	296	2216	...	292	2283	...				
32	301	2126	+ ·031	296	2189	+ ·031	294	2261	+ ·030	290	2329	+ ·033				
33	299	2167	...	294	2232	...	292	2305	...	288	2373	...				
34	297	2208	+ 0·32	292	2275	+ ·032	290	2350	+ ·031	286	2422	+ ·034				
35	295	2248	...	290	2317	...	288	2394	...	284	2469	...				
36	293	2289	+ ·033	288	2360	+ ·033	286	2439	+ ·032	282	2516	+ ·035				
37	291	2330	...	286	2403	...	284	2483	...	280	2562	...				
38	289	2371	...	284	2446	+ ·034	282	2528	+ ·033	278	2609	+ ·036				
39	284	2412	+ ·034	281	2488	...	278	2572	...	275	2655	...				
40	278	2453	...	275	2531	+ ·035	273	2617	+ 034	270	2702	+ ·037				
41	273	2494	+ ·035	270	2574	...	267	2661	...	264	2749	+ ·038				
42	266	2535	...	264	2616	+ ·036	261	2706	+ ·035	258	2795	...				
43	261	2578	+ ·036	258	2659	...	256	2750	+ ·036	253	2842	+ ·039				
44	255	2617	+ ·037	252	2702	+ ·037	250	2795	...	247	2888	+ ·040				
45	249	2657	...	246	2744	...	244	2839	+ ·037	241	2935	...				
46	243	2698	+ ·038	241	2787	+ ·038	238	2884	...	236	2982	+ ·041				
47	237	2739	...	234	2830	+ ·039	232	2928	+ ·038	229	3028	...				
48	231	2780	+ ·039	228	2873	...	226	2973	...	223	3075	+ ·042				
49	224	2821	+ ·040	222	2915	+ ·040	220	3017	+ ·039	217	3121	+ ·043				
50	218	2862	...	216	2958	...	214	3062	+ ·040	211	3168	...				
51	211	2903	+ ·041	209	3001	+ ·041	207	3106	+ ·041	205	3215	+ ·044				
52	205	2944	...	203	3043	...	201	3151	...	199	3261	...				
53	198	2985	...	196	3086	...	194	3195	...	192	3308	...				
54	192	3026	...	190	3129	...	188	3240	...	186	3354	...				
55	185	3066	...	183	3171	...	181	3284	...	179	3401	...				
56	182	3107	...	181	3214	...	179	3329	...	176	3448	...				
57	178	3148	...	177	3257	...	175	3373	...	173	3494	...				
58	174	3189	...	173	3300	...	171	3418	...	170	3541	...				
59	170	3230	...	169	3342	...	167	3462	...	167	3587	...				
60	166	3271	...	165	3385	...	163	3507	...	164	3634	...				
61	162	3312	...	161	3428	...	159	3552	...	161	3680	...				
62	158	3311	...	157	3428	...	155	3553	...	158	3681	...				

March.

25	348	+77	+ ·002	
26	346	154	+ ·003	
27	345	230	+ ·004	
28	344	307	+ ·005	
29	342	384	+ ·006	
30	340	461	...	
31	339	538	+ ·007	
1	337	614	+ ·008	
2	335	691	+ ·009	
3	333	768	+ ·010	
4	330	845	+ ·011	
5	328	922	+ ·012	
6	326	998	+ ·013	
7	324	1075	...	
8	321	1152	+ ·014	
9	318	1229	+ ·015	
10	316	1306	+ ·016	
11	314	1382	+ ·017	
12	312	1459	+ ·018	
13	310	1536	+ ·019	

April.

14	308	1613	...	
15	306	1690	+ ·020	
16	304	1766	+ ·021	
17	302	1843	...	
18	300	1920	+ ·022	
19	298	1997	...	
20	296	2074	+ ·023	
21	294	2150	...	
22	292	2227	+ ·024	
23	290	2304	+ ·025	
24	288	2352	...	
25	286	2401	+ ·026	
26	284	2449	...	
27	282	2498	+ ·027	
28	280	2546	...	
29	278	2595	+ ·028	
30	276	2643	+ ·029	
1	274	2692	...	
2	272	2740	+ ·030	
3	267	2789	...	
4	262	2837	+ ·031	
5	256	2886	+ ·032	
6	250	2934	...	
7	245	2983	+ ·033	
8	239	3031	...	
9	233	3080	+ ·034	
10	227	3128	+ ·035	
11	221	3177	+ ·036	
12	215	3225	...	
13	209	3274	+ ·037	

May.

14	203	3322	...	
15	197	3371	+ ·038	
16	190	3419	...	
17	184	3468	...	
18	178	3516	...	
19	174	3565	...	
20	170	3613	...	
21	166	3662	...	
22	162	3710	...	
23	158	3759	...	
24	154	3808	...	
25	150	3810	...	

TABLE III.—Sunrise from 28° to 32° N. latitude—*cont.*

Day of solar year.	Lat. 28° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. + 460″ = + ·005 of day. Total correctn. as fraction of a day. Mathura.	Lat. 29° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. + 352″ = + ·004 of day. Total correctn. as fraction of a day. Delhi.	Lat. 30° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. + 152″ = + ·002 of day. Total correctn. as fraction of a day. Patiala.	Lat. 31° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. + 332″ = + ·004 of day. Total correctn. as fraction of a day. Simla.	Eng. date.	Lat. 32° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. − 348″ = − ·004 of day. Total correctn. as fraction of a day. Lahore.
			A.D. 1000 − 1400.			A.D. 1000 − 1400.			A.D. 1000 − 1400.			A.D. 1000 − 1400.				A.D. 1000 − 1400.
63	−154	+3310	+·041	−153	+3428	+·041	−151	+3553	+·041	−153	+3683	+·045	26	−146	+3813	+·038
64	150	3309	...	149	3428	...	147	3554	...	146	3684	...	27	142	3815	...
65	141	3308	...	140	3427	...	140	3555	...	139	3686	...	28	139	3817	...
66	132	3306	+·042	131	3427	+·042	131	3555	+·042	131	3687	...	29	130	3819	+·039
67	123	3305	...	123	3427	...	122	3556	...	122	3689	...	30	121	3822	...
68	114	3304	...	114	3427	...	113	3557	...	113	3690	...	31	113	3824	...
69	105	3303	...	105	3427	...	104	3558	...	104	3692	...	1	104	3826	...
70	96	3302	...	96	3427	...	96	3558	...	95	3693	...	2	95	3829	...
71	87	3301	...	87	3427	...	87	3559	...	86	3695	...	3	86	3831	...
72	78	3300	...	78	3427	...	78	3560	...	77	3698	...	4	77	3833	...
73	69	3299	...	69	3426	...	69	3560	...	69	3698	...	5	68	3836	...
74	60	3298	...	50	3426	...	59	3561	...	59	3699	+·046	6	59	3838	...
75	52	3297	...	52	3426	...	52	3562	...	51	3701	...	7	51	3840	...
76	41	3295	...	41	3426	...	41	3562	...	41	3702	...	8	41	3 42	+·040
77	32	3294	...	32	3426	...	32	3563	...	32	3704	...	9	32	3845	...
78	23	3293		23	3426	...	23	3564	...	23	3705	...	10	23	3847	...
79	14	3292	...	14	3426	...	14	3565	...	14	3707	...	11	14	3849	...
80	5	3291	+·043	5	3425		5	3565	...	5	3708	...	12	5	3852	...
81	+ 4	3290	...	+ 4	3425	...	+ 4	3566	+·043	+ 4	3710	+·047	13	+ 4	3854	+·041
82	13	3289	...	13	3425	...	13	3567	...	13	3711	...	14	13	3856	...
83	22	3288	+·042	22	3425	...	22	3567	...	22	3713	+·046	15	22	3859	+·040
84	32	3287	...	32	3425	+·043	31	3568	+·042	31	3714	...	16	31	3861	...
85	41	3286	...	41	3425	...	41	3569	...	41	3716	...	17	41	3863	+·039
86	50	3284	...	50	3425	+·042	50	3569	...	49	3717	...	18	49	3865	...
87	59	3283	+·041	59	3425	...	58	3570	...	58	3719	+·045	19	58	3868	...
88	68	3282	...	68	3424	+·041	68	3570	+·041	67	3720	...	20	67	3870	...
89	77	3281	...	77	3424	...	77	3571	...	76	3722	+·044	21	76	3872	+·038
90	86	3280	...	86	3424	...	85	3572	...	85	3723	...	22	85	3875	...
91	109	3280	+·040	109	3424	...	109	3572	+·040	110	3724	...	23	110	3876	...
92	119	3246	...	119	3389	+·040	120	3536	...	120	3688	...	24	120	3839	+·037
93	129	3212	...	129	3355	...	130	3501	...	130	3652	...	25	131	3802	...
94	139	3178	...	140	3320	...	140	3465	...	140	3615	+·043	26	141	3765	...
95	149	3144	+·039	150	3285	...	150	3430	+·039	150	3579	...	27	151	3728	...
96	159	3110	...	160	3250	+·039	160	3394	...	161	3543	+·042	28	161	3691	+·036
97	169	3077	...	170	3216	...	170	3359	...	171	3507	...	29	171	3654	...
98	179	3043	...	180	3181	...	180	3323	...	181	3471	...	30	181	3617	...
99	189	3009	+·038	190	3146	...	191	3288	+·038	191	3434	...	1	192	3580	+·035
100	199	2975	...	199	3112	+·038	200	3252	...	201	3398	+·041	2	201	3543	...
101	209	2941	+·037	209	3077	+·037	210	3217	...	210	3362	...	3	211	3508	...
102	218	2907	...	219	3042	...	220	3281	+·037	220	3326	...	4	221	3469	...
103	228	2873	...	229	3008	...	229	3146	...	230	3290	...	5	231	3432	...
104	238	2839	+·036	238	2973	...	239	3110	...	240	3253	+·040	6	241	3395	+·034
105	247	2805	...	248	2938	...	249	3075	+·036	249	3217	...	7	250	3358	...
106	257	2771	...	257	2903	...	258	3039	...	259	3181	...	8	260	3321	+·033
107	266	2738	...	266	2869	+·036	267	3004	...	268	3145	+·039	9	269	3284	...
108	275	2704	...	276	2834	...	277	2968	+·035	277	3109	...	10	278	3247	...
109	284	2670	+·035	285	2799	...	286	2933	...	287	3072	+·038	11	287	3210	+·032
110	293	2636	...	294	2765	+·035	295	2897	...	296	3036	...	12	296	3173	...
111	302	2602	...	303	2730	...	304	2862	...	304	3000	...	13	305	3136	...
112	311	2568	+·034	312	2695	...	313	2826	+·034	314	2964	...	14	314	3099	+·031
113	320	2534	..	320	2661	...	321	2791	...	322	2928	+·037	15	323	3062	...
114	329	2500	...	330	2626	+·034	330	2755	+·033	331	2891	...	16	332	3025	+·030
115	337	2466	+·033	338	2591	...	339	2720	...	340	2855	...	17	341	2988	...
116	345	2432	...	346	2556	+·033	347	2684	...	348	2819	+·036	18	349	2951	+·029
117	353	2399		354	2522	...	355	2649	+·032	357	2783	...	19	358	2914	...
118	362	2365	+·032	363	2487	+·032	364	2613	...	365	2747	+·035	20	366	2877	+·028
119	370	2331	...	371	2452	...	372	2578	+·031	373	2710	...	21	374	2840	...
120	378	2297	...	379	2418	...	380	2542	...	381	2674	+·034	22	382	2803	+·027
121	394	2263	+·031	396	2383	...	399	2507	...	402	2638	..	23	390	2766	...
122	402	2228	...	405	2348	+·031	407	2472	+·030	410	2600	+·033	24	413	2728	...
123	409	2187	+·030	413	2305	+·030	415	2427	...	418	2553	...	25	421	2679	+·026
124	417	2146	...	421	2262	...	423	2383	+·029	426	2506	+·032	26	429	2630	...
125	424	2105	+·029	428	2220	...	430	2338	...	433	2460	...	27	436	2582	+·025

May. June. July.

TABLE III.—Sunrise from 28° to 32° N. latitude—*cont.*

Day of solar year.	Lat. 28° Long. + 460″ = + ·005 of day.			Lat. 29° Long. + 352″ = + ·004 of day.			Lat. 30° Long. + 152″ = + ·002 of day.			Lat. 31° Long. + 332″ = + ·004 of day.			Lat. 32° Long. − 348″ = − ·004 of day.			Day of solar year.
	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Mathura.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Delhi.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Patiala.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Simla.**	**Eng. date.**	Eqn. of time in seconds.	☉'s trop. long. in seconds.	Total correctn. as fraction of a day. **Lahore.**	
		A.D. 1000— 1400.			**A.D.** 1000— 1400.			**A.D.** 1000— 1400.			**A.D.** 1000— 1400.				**A.D.** 1000— 1400.		
126	+ 433	+ 2064	+ ·029	+ 436	+ 2177	+ ·029	+ 438	+ 2293	+ ·029	+ 441	+ 2413	+ ·032		**28** + 444	+ 2538	+ ·025	
127	440	2023	...	444	2134	...	445	2248	+ ·028	449	2366	+ ·031		**29** 452	2484	+ ·024	
128	447	1983	...	451	2091	+ ·028	453	2204	...	456	2319	...		**30** 459	2435	...	
129	454	1942	+ ·028	458	2048	...	460	2159	+ ·027	463	2272	+ ·030		**31** 466	2386	+ ·023	
130	461	1901	...	465	2006	+ ·027	467	2114	...	470	2226	...		**1** 473	2338	...	
131	467	1860	+ ·027	471	1963	...	474	2070	...	477	2179	...		**2** 480	2289	...	
132	473	1819	...	477	1920	...	481	2025	+ ·026	484	2132	+ ·029		**3** 487	2240	+ ·022	
133	480	1778	...	484	1877	+ ·026	488	1980	...	491	2085	...		**4** 494	2191	+ ·021	
134	486	1737	+ ·026	490	1834	...	494	1936	+ ·025	497	2038	+ ·028		**5** 500	2142	...	
135	492	1696	...	496	1792	+ ·025	500	1891	+ ·024	503	1992	+ ·027		**6** 506	2094	+ ·020	
136	498	1655	+ ·025	502	1749	...	506	1846	...	509	1945	...		**7** 512	2045	...	
137	504	1614	...	508	1706	+ ·024	512	1801	+ ·023	515	1898	...		**8** 518	1996	...	
138	510	1574	+ ·024	514	1663	...	518	1757	...	521	1851	+ ·026		**9** 524	1947	+ ·019	
139	516	1533	...	520	1620	...	524	1712	...	527	1804	...		**10** 530	1898	...	
140	521	1492	...	525	1578	+ ·023	529	1667	+ ·022	532	1758	+ ·025		**11** 535	1850	+ ·018	
141	526	1451	+ ·023	530	1535	...	534	1624	...	538	1711	...		**12** 541	1801	...	
142	531	1410	..	535	1492	+ ·022	539	1578	+ ·021	543	1664	+ ·024		**13** 546	1752	+ ·017	
143	536	1369	+ ·022	540	1449	...	544	1533	...	548	1617	...		**14** 551	1703	+ ·016	
144	541	1328	...	545	1406	...	549	1489	+ ·020	553	1570	+ ·023		**15** 556	1654	...	
145	546	1287	...	550	1364	+ ·021	554	1444	...	558	1524	...		**16** 561	1606	+ ·015	
146	550	1246	+ ·021	554	1321	...	558	1399	...	562	1477	...		**17** 566	1557	...	
147	554	1205	...	558	1278	+ ·020	562	1354	+ ·019	566	1430	+ ·022		**18** 571	1508	...	
148	556	1165	+ ·020	560	1235		564	1310	...	568	1383	...		**19** 574	1459	+ ·014	
149	558	1124	...	562	1192	...	566	1265	...	570	1336	+ ·021		**20** 576	1410	...	
150	560	1083	...	564	1150	...	568	1220	+ ·018	572	1290	...		**21** 578	1362	...	
151	562	1042	...	566	1107	+ ·019	570	1176	...	574	1243	+ ·020		**22** 580	1313	+ ·013	
152	564	1000	...	568	1064	...	572	1132	...	576	1196	...		**23** 582	1264	...	
153	566	968	+ ·019	570	1020	+ ·018	574	1095	+ ·017	578	1157	...		**24** 584	1223	+ ·012	
154	568	936	...	572	995	...	576	1059	...	580	1119	+ ·019		**25** 586	1182	...	
155	570	903	+ ·018	574	961	...	578	1022	+ ·016	582	1080	...		**26** 588	1142	...	
156	572	871	...	576	927	+ ·017	580	986	...	585	1042	+ ·018		**27** 590	1101	+ ·011	
157	574	839	...	578	892	...	583	949	+ ·015	587	1003	...		**28** 592	1060	...	
158	577	807	+ ·017	581	858	...	586	913	...	590	964	+ ·017		**29** 595	1019	+ ·010	
159	579	775	...	583	824	+ ·016	588	876	...	592	926	...		**30** 597	978		
160	581	742	...	585	790	...	590	840	...	594	887	...		**31** 599	938	+ ·009	
161	583	710	+ ·016	587	755	...	592	803	+ ·014	596	849	...		**1** 601	897	...	
162	584	678	...	589	721	+ ·015	593	767	...	597	810	+ ·016		**2** 602	856	+ ·008	
163	586	646	...	590	687	...	595	730	+ ·013	599	771	...		**3** 604	815	...	
164	588	614	+ ·015	592	652	+ ·014	597	694	...	601	733	+ ·015		**4** 606	774	...	
165	589	581	...	593	618	...	598	657	...	602	694	...		**5** 607	734	+ ·007	
166	589	549	+ ·014	593	584	+ ·013	598	621	+ ·012	602	656	+ ·014		**6** 607	693	...	
167	590	517	...	594	549	...	599	584	...	603	617	...		**7** 608	652	+ ·006	
168	591	485	...	595	515	...	600	548	+ ·011	604	578	+ ·013		**8** 609	611	...	
169	592	453	+ ·013	596	481	+ ·012	601	511	...	605	540	...		**9** 610	570	+ ·005	
170	592	420	...	596	447	...	601	475	+ ·010	605	501	...		**10** 610	530	...	
171	592	388	...	596	412	...	601	438	...	605	463	+ ·012		**11** 610	489	+ ·004	
172	592	356	+ ·012	596	378	+ ·011	601	402	...	605	424	..		**12** 610	448	...	
173	592	324	+ ·011	596	343	+ ·010	601	365	+ ·009	605	385	+ ·011		**13** 610	407	+ ·003	
174	592	292	+ ·010	596	309	...	601	329	...	605	347	...		**14** 610	366		
175	592	259	..	596	275	...	601	292	+ ·008	605	308	+ ·010		**15** 610	326	+ ·002	
176	592	227	...	596	241	...	601	256	...	605	270	...		**16** 610	285	...	
177	591	195	+ ·009	595	206	+ ·009	600	219	...	604	231	+ ·009		**17** 609	244	+ ·001	
178	590	163	...	594	172	...	599	183	+ ·007	603	192	...		**18** 608	203	...	
179	589	131	+ ·008	593	138	+ ·008	598	146	...	602	154	+ ·008		**19** 607	162	·000	
180	588	98	...	592	104	...	597	110	+ ·006	601	115	...		**20** 606	122	...	
181	586	66	...	590	69	+ ·007	595	73	...	599	77	...		**21** 604	81	− ·001	
182	585	34	+ ·007	589	33	...	594	37	+ ·005	598	38	+ ·007		**22** 603	40	...	
183	584	0	...	588	0	...	593	0	...	598	0	...		**23** 603	0	− ·002	
184	582	−33	...	586	−35	+ ·006	591	−38	+ ·004	596	−40	+ ·006		**24** 601	− 42	...	
185	580	67	+ ·006	584	71	...	589	75	...	594	80	...		**25** 599	84	− ·003	
186	578	100	...	582	106	+ ·005	587	113	+ ·003	592	120	+ ·005		**26** 597	126	∞	

TABLE III.—Sunrise from 28° to 32° N. latitude—*cont.*

Day of solar year.	Lat. 28° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. + 460″ = + ·005 of day. Total correctn. as fraction of a day. Mathura. A.D. 1000—1400.	Lat. 29° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. + 852″ = + ·004 of day. Total correctn. as fraction of a day. Delhi. A.D. 1000—1400.	Lat. 30° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. + 152″ = + ·002 of day. Total correctn. as fraction of a day. Patiala. A.D. 1000—1400.	Lat. 31° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. + 332″ = + ·004 of day. Total correctn. as fraction of a day. Simla. A.D. 1000—1400.	Eng. date.	Lat. 32° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. − 348″ = − ·004 of day. Total correctn. as fraction of a day. Lahore. A.D. 1000—1400.
187	+ 576	− 133	+ ·005	+ 580	− 142	+ ·005	+ 585	− 151	+ ·003	+ 590	− 160	+ ·005		27	+ 595	− 168	− ·004
188	573	166	...	577	177	...	582	188	...	587	199	+ ·004	Sep.	28	592	210	...
189	570	200	...	574	213	+ ·004	579	226	+ ·002	584	239	...		29	589	253	− ·005
190	567	233	+ ·004	571	248	...	576	264	...	581	279	+ ·003		30	586	295	...
191	564	266	...	568	284	+ ·003	573	302	+ ·001	578	319	...		1	583	337	− ·006
192	561	300	...	565	319	...	570	339	...	575	359	+ ·002		2	580	379	...
193	557	333	...	561	355	...	566	377	·000	571	399	...		3	576	421	...
194	554	366	...	558	390	+ ·002	563	415	...	568	439	...		4	573	463	− ·007
195	550	400	+ ·003	554	426	..	559	452	− ·001	564	479	+ ·001		5	569	505	...
196	546	433	...	550	461	+ ·001	555	490	...	560	519	...		6	565	547	− ·008
197	542	466	...	546	497	...	551	528	− ·002	556	559	·000		7	561	589	− ·009
198	538	499	+ ·002	542	532	...	547	565	...	552	598	− ·001		8	557	631	..
199	534	533	...	538	568	·000	543	603	− ·003	548	638	...		9	553	674	− ·010
200	529	566	+ ·001	533	603	...	538	641	...	543	678	...		10	548	716	...
201	524	599	...	528	639	− ·001	533	679	− ·004	538	718	− ·002		11	543	758	− ·011
202	520	633	·000	524	674	− ·002	529	716	...	534	758	− ·003		12	539	800	
203	515	666	...	519	710	...	524	754	− ·005	529	798	...		13	534	842	− ·012
204	509	699	− ·001	513	745	− ·003	518	792	...	523	838	− ·004		14	528	884	...
205	504	733	...	508	781	..	513	829	− ·006	518	878	− ·005	October.	15	523	926	− ·013
206	499	766	− ·002	503	816	− ·004	508	867	...	513	918	...		16	518	968	− ·014
207	495	799	...	499	852	...	504	905	− ·007	509	958	− ·006		17	514	1010	− ·015
208	489	832	− ·003	493	887	− ·005	498	942	...	503	997	...		18	508	1052	...
209	483	866	...	487	923	...	492	980	− ·008	497	1037	− ·007		19	502	1095	− ·016
210	477	899	− ·004	481	958	...	486	1018	...	491	1077	...		20	496	1137	...
211	471	932	− ·005	477	994	− ·006	480	1056	− ·009	485	1117	− ·008		21	490	1179	− ·017
212	468	966	...	473	1029	− ·007	474	1093	− ·010	479	1157	− ·009		22	483	1221	...
213	465	1000	− ·006	469	1064	...	478	1132	...	478	1196	− ·010		23	481	1264	− ·018
214	462	1041	...	465	1107	− ·008	467	1177	·011	471	1243	− ·011		24	474	1313	− ·019
215	455	1082	− ·007	458	1150	...	460	1221	− ·012	464	1290	...		25	467	1362	− ·020
216	448	1123	...	451	1192	− ·009	453	1266	..	457	1336	− ·012		26	460	1410	...
217	441	1164	...	444	1235	...	446	1311	− ·013	450	1383	− ·013		27	453	1459	− ·021
218	434	1204	− ·008	437	1278	− ·010	439	1355	− ·014	448	1430	...		28	446	1508	...
219	426	1245	...	429	1321	− ·011	431	1400	...	435	1477	− ·014		29	438	1557	− ·022
220	419	1286	− ·009	422	1364	...	424	1445	− ·015	428	1524	...		30	431	1606	− ·023
221	411	1327	...	414	1406	− ·012	416	1490	...	420	1570	− ·015		31	423	1654	− ·024
222	403	1368	− ·010	406	1449	...	408	1534	− ·016	412	1617	− ·016		1	415	1703	...
223	395	1409	− ·011	398	1492	− ·013	400	1579	− ·017	404	1664	...		2	407	1752	− ·025
224	387	1450	− ·012	390	1535	...	392	1624	...	396	1711	− ·017		3	399	1801	− ·026
225	379	1491	...	382	1578	− ·014	384	1668	− ·018	388	1758	− ·018		4	391	1850	...
226	371	1532	− ·013	374	1620	− ·015	376	1713	...	380	1804	...		5	383	1898	− ·027
227	362	1573	...	365	1663	...	367	1758	− ·019	371	1851	− ·019		6	374	1947	...
228	354	1613	− ·014	357	1706	− ·016	359	1802	...	363	1898	− ·020		7	366	1996	− ·028
229	345	1654	...	348	1749	− ·017	350	1847	− ·020	354	1945	...		8	357	2045	− ·029
230	336	1695	− ·015	339	1792	...	341	1892	− ·021	345	1992	− ·021		9	348	2094	− ·030
231	327	1736	...	330	1834	− ·018	332	1937	...	336	2038	...	November.	10	339	2142	...
232	318	1777	− ·016	321	1877	...	323	1981	− ·022	327	2085	− ·022		11	330	2191	− ·031
233	309	1818	− ·017	312	1920	− ·019	314	2026	− ·023	318	2132	− ·023		12	321	2240	...
234	299	1859	...	302	1963	− ·020	304	2071	...	308	2179	...		13	311	2289	− ·032
235	290	1900	− ·018	293	2006	...	295	2115	− ·024	299	2226	− ·024		14	302	2338	− ·033
236	281	1941	...	284	2048	− ·021	286	2160	...	290	2272	...		15	293	2386	...
237	272	1982	− ·019	275	2091	...	277	2205	− ·025	281	2319	− ·025		16	284	2435	...
238	262	2022	− ·020	265	2134	− ·022	267	2249	− ·026	271	2366	− ·026		17	274	2484	− ·034
239	252	2063	...	255	2177	...	257	2294	...	261	2413	...		18	264	2533	...
240	243	2104	...	246	2220	− ·023	248	2339	...	252	2460	...		19	255	2582	− ·035
241	233	2145	− ·021	236	2262	...	238	2384	− ·027	242	2506	− ·027		20	244	2630	...
242	223	2186	− ·022	226	2305	− ·024	228	2428	− ·028	232	2553	− ·028		21	234	2679	− ·036
243	207	2228	...	208	2348	...	208	2472	...	209	2600	...		22	210	2728	− ·037
244	198	2262	...	199	2383	− ·025	199	2507	...	200	2636	− ·029		23	201	2765	− ·038
245	188	2296	− ·023	189	2417	− ·026	189	2543	− ·029	190	2672	...		24	191	2802	...
246	178	2330	− ·024	179	2452	...	179	2578	− ·030	180	2709	− ·030		25	181	2839	− ·039

TABLE III.—Sunrise from 28° to 32° N. latitude—*cont.*

Day of solar year.	Lat. 28° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +460″ = +·005 of day. Total correctn. as fraction of a day. Mathura.	Lat. 29° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +352″ = +·004 of day. Total correctn. as fraction of a day. Delhi.	Lat. 30° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +152″ = +·002 of day. Total correctn. as fraction of a day. Patiala.	Lat. 31° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. +332″ = +·004 of day. Total correctn. as fraction of a day. Simla.	Eng. date.	Lat. 32° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −348″ = −·004 of day. Total correctn. as fraction of a day. Lahore.
			A.D. 1000– 1400.			A.D. 1000– 1400.			A.D. 1000– 1400.			A.D. 1000– 1400.				A.D. 1000– 1400.
247	+168	−2364	−·024	+169	−2487	−·027	+169	−2614	−·030	+170	−2745	−·030				
248	158	2397	...	159	2521	...	159	2649	−·031	160	2781	...	November. 26	+171	−2876	−·039
249	148	2431	−·025	149	2556	...	149	2685	...	150	2817	−·031	27	161	2913	−·040
250	138	2465	−·026	139	2591	−·028	139	2720	−·032	140	2853	−·032	28	151	2950	...
251	128	2499	...	129	2626	−·029	129	2756	...	130	2890	...	29	141	2987	−·041
252	118	2533	...	119	2660	...	119	2791	−·033	120	2926	...	30	131	3024	−·042
253	108	2567	−·027	109	2695	−·030	109	2827	...	110	2962	−·033	1	121	3061	...
254	98	2601	−·028	99	2730	...	99	2862	−·034	100	2998	...	2	111	3098	...
255	88	2635	...	89	2764	−·031	89	2898	...	90	3034	−·034	3	101	3135	−·043
256	78	2669	...	79	2799	...	79	2933	−·035	80	3071	...	4	91	3172	−·044
257	68	2703	−·029	69	2834	−·032	69	2969	...	70	3107	−·035	5	81	3209	−·045
258	58	2736	−·030	59	2868	−·033	59	3004	−·036	60	3143	−·036	6	71	3246	...
259	47	2770	...	48	2903	...	48	3040	−·037	49	3179	...	7	61	3283	−·046
260	37	2804	−·031	38	2938	...	38	3075	...	39	3215	−·037	8	50	3320	...
261	27	2838	...	28	2973	−·034	28	3111	...	29	3252	...	9	40	3357	...
262	17	2872	...	18	3007	−·035	18	3146	−·038	19	3288	−·038	10	30	3394	−·047
263	2	2906	−·032	2	3042	...	2	3182	...	2	3324	...	11	20	3431	...
264	−11	2940	−·033	−11	3077	...	−11	3217	−·039	−11	3360	−·039	12	4	3468	−·048
265	21	2974	...	21	3111	...	21	3253	−·040	21	3396	...	13	−12	3505	−·049
266	35	3008	...	36	3146	...	36	3288	...	37	3433	...	14	28	3542	...
267	45	3042	...	46	3181	−·036	46	3324	...	47	3469	...	15	38	3579	...
268	55	3075	...	56	3215	...	56	3359	...	57	3505	...	December. 16	48	3616	...
269	66	3109	...	67	3250	...	67	3395	...	68	3541	...	17	58	3653	...
270	76	3143	...	77	3285	...	77	3430	...	78	3577	...	18	69	3690	...
271	87	3177	...	88	3320	...	88	3466	...	89	3614	...	19	79	3727	...
272	97	3211	...	98	3354	...	98	3501	...	99	3650	...	20	90	3764	...
273	107	3245	...	108	3390	...	108	3537	...	109	3686	...	21	100	3801	...
274	100	3280	..	100	3424	...	100	3572	...	98	3724	...	22	110	3838	...
275	106	3281	...	106	3424	...	106	3571	...	104	3722	...	23	98	3876	...
276	112	3282	...	112	3424	...	112	3571	...	110	3721	...	24	104	3874	...
277	118	3283	...	118	3424	...	118	3570	...	116	3719	...	25	110	3871	...
278	124	3284	...	124	3424	...	124	3569	...	122	3718	...	26	116	3869	−·050
279	130	3285	−·034	130	3425	−·037	130	3568	...	128	3716	−·040	27	122	3867	...
280	136	3287	...	136	3425	...	136	3568	...	134	3715	...	28	128	3864	...
281	142	3288	...	142	3425	...	142	3567	...	140	3713	...	29	134	3862	...
282	148	3289	...	148	3425	...	148	3566	...	146	3712	...	30	140	3860	...
283	154	3290	...	154	3425	...	154	3566	...	152	3710	...	31	146	3858	...
284	160	3291	...	160	3425	...	160	3565	...	158	3709	...	1	152	3855	...
285	166	3292	...	166	3425	...	166	3564	...	164	3707	...	2	158	3853	...
286	172	3293	...	172	3426	...	172	3564	...	170	3706	...	3	164	3850	...
287	178	3294	...	178	3426	...	178	3563	...	176	3704	...	4	170	3848	...
288	184	3295	...	184	3426	...	184	3562	...	182	3703	...	5	176	3846	...
289	190	3296	...	190	3426	...	190	3561	...	188	3701	...	6	182	3844	...
290	196	3298	...	196	3426	...	196	3561	...	194	3700	...	7	188	3841	...
291	202	3299	...	202	3426	...	202	3560	...	200	3698	...	8	194	3839	...
292	208	3300	...	208	3426	...	208	3559	...	206	3697	...	9	200	3837	...
293	214	3301	...	214	3426	−·038	214	3559	...	212	3695	−·041	January. 10	206	3835	...
294	220	3302	...	220	3426	...	220	3558	...	218	3694	...	11	212	3832	...
295	226	3303	...	226	3427	...	226	3557	−·041	224	3692	...	12	218	3830	...
296	232	3304	−·035	232	3427	−·037	232	3557	...	230	3691	−·040	13	223	3828	...
297	238	3305	...	238	3427	...	238	3556	−·040	235	3689	...	14	229	3825	...
298	244	3306	−·034	244	3427	−·036	244	3555	...	240	3688	−·039	15	234	3823	−·049
299	250	3307	...	250	3427	...	250	3554	−·039	245	3686	...	16	239	3821	...
300	256	3309	...	256	3427	−·035	255	3554	...	250	3685	−·038	17	244	3818	−·048
301	262	3310	−·033	262	3427	...	260	3553	...	255	3683	...	18	249	3816	−·047
302	268	3311	...	268	3428	−·034	265	3552	−·038	260	3682	...	19	254	3814	...
303	274	3312	−·032	273	3428	...	270	3552	...	266	3680	−·037	20	260	3812	...
304	280	3312	...	278	3428	−·033	276	3552	−·037	272	3680	−·036	21	265	3809	−·046
305	282	3271	−·031	280	3385	...	278	3507	...	274	3633	...	22	270	3808	...
													23	272	3759	−·045

TABLE III.—Sunrise from 28° to 32° N. latitude—*cont.*

Day of solar year.	Lat. 28°	Long. +460″ = +·005 of day.	Lat. 29°	Long. +352″ = +·004 of day.	Lat. 30°	Long. +152″ = +·002 of day.	Lat. 31°	Long. +332″ = +·004 of day.	Lat. 32°	Long. −348″ = −·004 of day.
Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Mathura.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Delhi.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Patiala.**	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Simla.**	Eng. date.	Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Total correctn. as fraction of a day. **Lahore.**
		A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.				A.D. 1000—1400.
306	−285	−3230	−·031	−283	−3343	−·032	−280	−3463	−·036	−276	−3587	−·035	24	−274	−3711	−·045
307	287	3189	−·030	285	3300	...	283	3418	...	279	3540	...	25	276	3662	−·044
308	290	3148	...	288	3257	−·031	285	3374	−·035	281	3494	−·034	26	278	3614	−·043
309	292	3107	−·029	290	3214	...	287	3329	...	283	3447	...	27	281	3565	...
310	295	3067	...	293	3172	−·030	290	3285	−·034	286	3400	−·033	28	283	3517	−·042
311	297	3026	...	295	3129	...	292	3240	...	288	3354	...	29	285	3468	...
312	300	2985	...	298	3086	...	294	3196	−·033	290	3307	−·032	30	287	3420	−·041
313	302	2944	−·028	300	3044	...	297	3151	...	293	3261	...	31	289	3371	...
314	305	2903	...	303	3001	...	299	3107	...	295	3214	−·031	1	292	3323	−·040
315	307	2862	−·027	305	2958	−·029	301	3062	−·032	297	3167	...	2	294	3274	−·039
316	310	2821	...	308	2916	...	304	3018	...	300	3121	−·030	3	296	3226	...
317	312	2780	−·026	310	2873	−·028	306	2973	−·031	302	3074	...	4	298	3177	−·038
318	315	2739	...	313	2830	...	308	2929	...	304	3028	−·029	5	300	3129	−·037
319	317	2698	−·025	315	2787	−·027	311	2884	−·030	307	2981	...	6	303	3080	...
320	320	2658	...	318	2745	...	313	2840	...	309	2934	−·028	7	305	3032	−·036
321	322	2617	−·024	320	2702	−·026	315	2795	−·029	311	2888	...	8	307	2983	...
322	325	2576	...	323	2659	...	318	2751	...	314	2841	−·027	9	309	2935	−·035
323	327	2535	−·023	325	2617	−·025	320	2706	−·028	316	2795	...	10	311	2886	...
324	330	2494	...	328	2574	...	322	2662	...	318	2748	−·026	11	314	2838	−·034
325	332	2453	−·022	330	2531	−·024	325	2617	−·027	321	2701	...	12	316	2789	−·033
326	335	2412	−·021	332	2489	−·023	327	2578	−·026	323	2655	−·025	13	318	2741	−·032
327	337	2371	...	334	2446	−·022	329	2528	...	325	2608	−·024	14	320	2693	−·031
328	340	2330	−·020	336	2403	−·021	331	2484	−·025	327	2562	−·023	15	323	2644	−·030
329	342	2289	−·019	338	2360	...	333	2439	−·024	329	2515	−·022	16	324	2595	...
330	345	2249	...	340	2318	−·020	335	2395	−·023	331	2468	−·021	17	326	2547	−·029
331	347	2208	−·018	342	2275	...	337	2350	−·022	333	2422	−·020	18	328	2498	−·028
332	349	2167	−·017	344	2232	−·019	339	2306	−·021	335	2375	...	19	330	2450	−·027
333	351	2126	−·016	346	2190	−·018	341	2261	−·020	337	2329	−·019	20	332	2401	−·026
334	353	2085	...	348	2147	−·017	343	2217	−·019	339	2282	−·018	21	334	2353	−·025
335	355	2044	−·015	350	2104	−·016	345	2172	...	341	2236	−·017	22	336	2304	−·024
336	355	1976	−·014	350	2084	−·015	345	2100	−·018	341	2161	−·016	23	336	2227	−·023
337	356	1908	−·013	351	1964	−·014	346	2027	−·017	342	2087	−·015	24	337	2150	−·022
338	356	1840	−·012	351	1894	...	346	1955	−·016	342	2012	−·014	25	337	2074	−·021
339	357	1772	...	352	1824	−·013	347	1882	−·015	343	1938	...	26	338	1997	...
340	357	1704	−·011	352	1753	−·012	347	1810	...	343	1863	−·013	27	338	1920	−·020
341	358	1635	−·010	353	1683	−·011	348	1738	−·014	344	1789	−·012	28	339	1843	−·019
342	358	1567	−·009	353	1613	−·010	348	1665	−·013	344	1714	−·011	1	339	1766	−·018
343	359	1499	−·008	354	1543	...	349	1593	−·012	345	1640	−·010	2	340	1690	−·017
344	359	1431	...	354	1473	−·009	349	1520	−·011	345	1565	−·009	3	340	1613	−·016
345	360	1363	−·007	355	1403	−·008	350	1448	−·010	346	1491	...	4	341	1536	−·015
346	360	1295	−·006	355	1333	−·007	350	1376	−·009	346	1416	−·008	5	341	1459	−·014
347	361	1227	...	356	1263	...	351	1303	...	347	1342	−·007	6	342	1382	−·013
348	361	1159	−·005	356	1193	−·006	351	1231	−·008	347	1267	−·006	7	342	1306	...
349	362	1091	−·004	357	1123	−·005	352	1158	−·007	348	1193	−·005	8	343	1229	−·012
350	362	1023	−·003	357	1052	−·004	352	1086	−·006	348	1118	−·004	9	343	1152	−·011
351	363	954	−·002	357	982	−·003	352	1014	−·005	349	1044	−·003	10	344	1175	...
352	363	886	...	358	912	−·002	353	941	−·004	349	969	−·002	11	344	998	−·010
353	364	818	−·001	358	842	−·001	353	869	...	349	895	−·001	12	344	922	...
354	364	750	·000	358	772	...	353	796	−·003	350	820	...	13	345	845	−·009
355	365	682	+·001	359	702	·000	354	724	−·002	350	746	·000	14	345	768	−·008
356	365	614	+·002	359	632	+·001	354	652	−·001	350	671	+·001	15	345	691	−·007
357	366	546	+·003	360	562	+·002	354	579	·000	351	597	...	16	346	614	−·006
358	366	478	...	360	492	...	355	507	+·001	351	522	+·002	17	346	538	−·005
359	367	410	+·004	360	422	+·003	355	434	...	351	448	+·003	18	346	461	−·004
360	367	342	+·005	361	351	+·004	355	362	+·002	352	373	+·004	19	347	384	−·003
361	368	273	+·006	361	281	+·005	356	290	+·003	352	299	+·005	20	347	307	−·002
362	368	205	+·007	361	211	+·006	356	217	+·004	352	224	+·006	21	347	230	−·001
363	368	137	...	362	141	...	356	145	+·005	353	150	+·007	22	348	154	·000
364	367	69	+·008	362	71	+·007	357	72	+·006	353	75	...	23	348	77	...
365	367	0	...	362	0	+·008	357	0	...	353	0	+·008	24	348	0	+·001

January. February. March.

TABLE III.—Sunrise from 33° to 35° N. latitude.

Day of solar year.	Lat. 33° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. −480″ = −·0055 of day. Total correctn. as fraction of a day. Jehlum.	Lat. 34° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. −228″ = −·003 of day. Total correctn. as fraction of a day. Srinagar.	Lat. 35° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. −1592″ = −·0185 of day. Total correctn. as fraction of a day. Kabul.	Eng. date.
			A.D. 1000–1400.			A.D. 1000–1400.			A.D. 1000–1400.	
1	−343	+79	+ ·001	−338	+82	+ ·003	−333	+84	− ·012	25
2	341	158	+ ·002	336	163	+ ·004	331	168	− ·011	26
3	340	238	+ ·003	335	245	+ ·005	330	252	− ·010	27
4	339	317	+ ·004	334	326	+ ·006	329	336	− ·009	28
5	337	396	+ ·005	332	408	+ ·007	328	420	− ·008	29
6	336	475	+ ·006	331	490	+ ·008	327	504	− ·007	30
7	334	554	+ ·007	330	571	+ ·009	325	588	− ·006	31
8	332	634	+ ·008	328	653	+ ·010	323	672	− ·005	1
9	330	713	+ ·009	326	734	+ ·011	321	756	− ·004	2
10	328	792	...	324	815	+ ·012	319	840	− ·003	3
11	326	871	+ ·010	321	898	+ ·013	317	924	− ·002	4
12	324	950	+ ·011	319	979	+ ·014	315	1008	− ·001	5
13	322	1030	+ ·012	317	1061	...	313	1092	·000	6
14	319	1109	+ ·013	315	1142	+ ·015	310	1176	+ ·001	7
15	316	1188	+ ·014	312	1224	+ ·016	308	1260	+ ·002	8
16	314	1267	+ ·015	310	1306	+ ·017	306	1344	+ ·003	9
17	312	1346	+ ·016	308	1387	+ ·018	304	1428	+ ·004	10
18	310	1426	+ ·017	306	1469	+ ·019	302	1512	+ ·005	11
19	308	1505	+ ·018	304	1550	+ ·020	300	1596	+ ·006	12
20	306	1584	...	302	1632	+ ·021	298	1680	+ ·007	13
21	304	1663	+ ·019	300	1714	+ ·022	296	1764	+ ·008	14
22	302	1742	+ ·020	298	1795	+ ·023	294	1848	...	15
23	300	1822	...	296	1877	...	292	1932	+ ·009	16
24	298	1901	+ ·021	294	1958	+ ·024	290	2016	..	17
25	296	1980	+ ·022	292	2040	+ ·025	288	2100	+ ·010	18
26	294	2059	...	290	2122	...	286	2184	+ ·011	19
27	292	2138	+ ·023	288	2203	+ ·026	284	2268	...	20
28	290	2218	...	286	2285	...	282	2352	+ ·012	21
29	288	2297	+ ·024	284	2366	+ ·027	280	2436	+ ·013	22
30	286	2376	+ ·025	282	2448	+ ·028	278	2520	...	23
31	284	2426	...	280	2500	...	276	2574	+ ·014	24
32	282	2477	+ ·026	278	2552	+ ·029	274	2628	...	25
33	280	2527	...	276	2604	+ ·030	272	2683	+ ·015	26
34	278	2577	+ ·027	274	2655	...	270	2737	+ ·016	27
35	276	2628	+ ·028	272	2707	+ ·031	268	2791	...	28
36	274	2678	...	270	2759	...	266	2845	+ ·017	29
37	272	2728	+ ·029	268	2811	+ ·032	264	2899	+ ·018	30
38	270	2779	...	266	2863	...	262	2953	...	1
39	269	2829	+ ·030	264	2915	+ ·033	260	3008	+ ·019	2
40	264	2879	+ ·031	261	2967	+ ·034	258	3062	+ ·020	3
41	260	2929	+ ·032	258	3019	+ ·035	256	3116	+ ·021	4
42	254	2980	...	252	3070	...	250	3170	...	5
43	247	3030	+ ·033	245	3122	+ ·036	243	3224	+ ·022	6
44	242	3080	...	240	3174	+ ·037	237	3279	+ ·023	7
45	236	3131	+ ·034	234	3226	...	231	3333	...	8
46	231	3181	...	228	3278	+ ·038	226	3387	+ ·024	9
47	224	3231	+ ·035	222	3330	...	219	3441	...	10
48	218	3282	+ ·036	216	3382	+ ·039	213	3495	+ ·025	11
49	212	3332	+ ·037	210	3433	+ ·040	208	3550	+ ·026	12
50	207	3382	...	205	3485	+ ·041	203	3604	+ ·027	13
51	201	3433	+ ·038	199	3537	...	197	3658	+ ·028	14
52	195	3483	...	193	3589	+ ·042	191	3712	...	15
53	188	3533	...	186	3641	...	184	3766	+ ·029	16
54	182	3584	...	180	3693	...	178	3821	...	17
55	176	3634	...	177	3745	...	176	3875	...	18
56	172	3684	...	174	3797	...	172	3929	...	19
57	169	3735	...	171	3848	...	168	3983	...	20
58	166	3785	...	168	3900	...	164	4037	...	21
59	163	3835	...	165	3952	...	160	4092	...	22
60	160	3886	...	162	4004	...	156	4146	...	23
61	157	3936	...	159	4056	...	152	4200	...	24
62	154	3989	+ ·039	156	4060	+ ·043	148	4205	...	25

March. April. May.

TABLE III.—Sunrise from 33° to 35° N. latitude—*cont.*

Day of solar year.	Lat. 33° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −480″ = −·0055 of day. Total correctn. as fraction of a day. Jehlum.	Lat. 34° Eqn. of time in seconds.	☉'s trop long. in seconds.	Long. −228″ = −·003 of day. Total correctn. as fraction of a day. Srinagar.	Lat. 35° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −1592″ = −·0185 of day. Total correctn. as fraction of a day. Kabul.	Eng. date.
			A.D. 1000–1400.			A.D. −1000 1400.			A.D. −1000 1400.	
63	—151	+3942	+·039	—153	+4064	+·043	—144	+4210	+·029	26
64	148	3946	...	150	4068	...	140	4214	...	27
65	138	3949	...	138	4072	...	137	4219	...	28
66	130	3952	...	130	4076	...	130	4224	+·030	29
67	121	3955	...	120	4080	...	120	4229	...	30
68	112	3958	...	112	4084	...	112	4234	...	31
69	103	3962	...	103	4088	...	103	4238	...	1
70	95	3965	...	94	4092	...	94	4243	...	2
71	86	3968	+·040	85	4096	...	85	4248	..	3
72	77	3971	...	76	4100	...	76	4253	...	4
73	68	3974	...	68	4104	+.044	68	4258	...	5
74	58	3978	...	58	4108	...	58	4262	...	6
75	51	3981	..	50	4112	...	50	4267	...	7
76	41	3984	+·041	41	4116	...	41	4272	+·031	8
77	32	3987	...	32	4120	...	32	4277	...	9
78	23	3990	...	23	4124	...	23	4282	...	10
79	14	3994	...	14	4128	...	14	4286	...	11
80	5	3997	...	5	4132	+·045	5	4291	...	12
81	+ 4	4000	...	+ 4	4136	...	+ 4	4296	...	13
82	13	4003	...	13	4140	...	13	4301	+·032	14
83	22	4006	..	22	4144	...	22	4306	...	15
84	30	4010	...	30	4148	+·044	30	4310	+·031	16
85	40	4013	...	40	4152	...	40	4315	...	17
86	49	4016	+·040	48	4156	..	48	4320	+·030	18
87	57	4019	...	57	4160	+·043	57	4325	...	19
88	67	4022	+·039	66	4164	...	66	4330	+·029	20
89	76	4026	...	75	4168	+·042	75	4334	...	21
90	84	4029	...	84	4172	...	84	4339	...	22
91	110	4032	...	111	4176	...	111	4344	+·028	23
92	121	3994	+·038	121	4137	...	121	4304	...	24
93	131	3956	...	132	4099	...	132	4265	...	25
94	141	3918	...	141	4060	+·041	142	4225	...	26
95	151	3880	+·037	151	4021	...	152	4186	+·027	27
96	162	3842	...	162	3982	+·040	163	4147	...	28
97	172	3804	...	172	3944	...	173	4107	...	29
98	182	3766	+·036	182	3905	...	183	4068	+·026	30
99	192	3728	...	193	3866	+·039	193	4028	...	1
100	202	3691	+·035	202	3828	...	203	3989	+·025	2
101	211	3653	...	212	3789	...	212	3949	...	3
102	221	3615	...	222	3750	...	222	3910	...	4
103	231	3577	...	232	3711	+·038	232	3870	+·024	5
104	242	3539	+·034	243	3673	...	244	3831	...	6
105	251	3501	...	252	3634	...	253	3791	...	7
106	261	3463	...	262	3595	+·037	263	3752	...	8
107	270	3425	...	271	3557	...	272	3712	...	9
108	278	3387	+·033	279	3518	+·036	280	3673	+·023	10
109	288	3349	...	288	3479	...	289	3633	...	11
110	297	3311	...	297	3440	...	298	3594	+·022	12
111	305	3273	+·032	305	3402	...	306	3554	...	13
112	315	3235	..	316	3363	+·035	316	3515	+·021	14
113	324	3197	+·031	325	3324	...	326	3475	...	15
114	333	3159	...	334	3286	+·034	335	3436	+·020	16
115	342	3121	+·030	343	3247	...	344	3396	...	17
116	350	3084	+·029	351	3208	+·033	352	3357	+·019	18
117	359	3046	...	360	3169	...	361	3317		19
118	367	3008	...	368	3131	+·032	369	3278	+·018	20
119	375	2970	+·028	376	3092	...	377	3238	...	21
120	383	2932	...	384	3053	+·031	385	3199	+·017	22
121	408	2894	...	411	3015	+·030	414	3159	...	23
122	416	2856	+·027	419	2976	...	422	3120	+·016	24
123	424	2806	+·026	427	2924	...	430	3066	...	25
124	432	2755	...	435	2872	+·029	438	3011	+·015	26
125	439	2705	...	442	2820	...	445	2957	...	27

TABLE III.—Sunrise from 33° to 35° N. latitude—*cont.*

Day of solar year.	Lat. 33° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −480″ = −·0055 of day. Total correctn. as fraction of a day. Jehlum.	Lat. 34° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −228″ = −·003 of day. Total correctn as fraction of a day. Srinagar.	Lat. 35° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −1592″ = −·0185 of day. Total correctn. as fraction of a day. Kabul.	Eng. date.
			A.D. 1000—1400.			A.D. 1000—1400.			A.D. 1000—1400.	
126	+447	+2654	+·025	+450	+2768	+·028	+453	+2902	+·014	July. 28
127	455	2604	...	458	2716	...	461	2848	+·013	29
128	462	2554	+·024	465	2664	+·027	468	2794	...	30
129	469	2503	+·023	472	2612	...	475	2739	...	31
130	476	2453	+·022	479	2560	+·026	482	2685	+·012	1
131	483	2402	...	486	2508	...	489	2630	+·011	2
132	490	2352	+·021	493	2456	+·025	496	2576	+·010	3
133	497	2302	...	500	2404	...	503	2522	...	4
134	503	2251	+·020	506	2352	+·024	509	2467	+·009	5
135	509	2201	+·019	512	2300	+·023	515	2413	...	6
136	515	2150	...	518	2248	...	521	2358	...	7
137	521	2100	+·018	524	2196	...	527	2304	+·008	8
138	527	2050	...	530	2144	+·022	533	2250	+·007	9
139	533	1999	...	536	2092	+·021	539	2195	...	10
140	538	1949	...	541	2040	...	544	2141	+·006	11
141	544	1898	+·017	547	1988	+·020	550	2086	...	12
142	549	1848	...	552	1936	...	555	2032	+·005	13
143	554	1798	+·016	557	1884	+·019	560	1978	...	14
144	559	1747	...	562	1832	...	565	1923	+·004	15
145	564	1697	+·015	567	1780	...	570	1869	...	16
146	569	1646	...	573	1728	+·018	576	1814	+·008	17
147	576	1596	+·014	580	1676	+·017	585	1760	...	18
148	578	1546	...	586	1624	...	591	1706	+·002	19
149	580	1495	+·013	592	1572	+·016	596	1651	...	20
150	582	1445	...	595	1520	...	601	1597	+·001	21
151	584	1394	+·012	596	1468	+·015	602	1542	+·000	August. 22
152	586	1344	...	597	1416	...	603	1488	...	23
153	588	1301	...	598	1370	+·014	604	1440	−·001	24
154	590	1257	+·011	599	1325	...	605	1392	...	25
155	592	1214	...	600	1279	+·013	606	1344	...	26
156	594	1171	+·010	601	1283	...	607	1296	−·002	27
157	596	1127	...	602	1188	+·012	608	1248	...	28
158	599	1084	+·009	604	1142	...	609	1200	−·003	29
159	601	1040	...	606	1096	...	610	1152	...	30
160	603	997	...	608	1051	+·011	612	1104	−·004	31
161	605	954	+·008	610	1005	..	614	1056	−·005	1
162	606	910	...	611	959	+·010	615	1008	...	2
163	608	867	+·007	613	913	...	617	960	−·006	3
164	610	824	...	615	868	+·009	619	912	...	4
165	611	780	+·006	616	822	...	620	864	...	5
166	611	787	...	616	776	+·008	620	816	−·007	6
167	612	694	+·005	617	731	+·007	621	768	...	7
168	613	650	...	618	685	...	622	720	−·008	8
169	614	607	+·004	619	639	+·006	623	672	−·009	9
170	614	564	...	619	594	...	623	624	...	10
171	614	520	+·003	619	548	+·005	623	576	−·010	11
172	614	477	...	619	502	...	623	528	...	12
173	614	433	+·002	619	457	+·004	623	480	−·011	13
174	614	390	...	619	411	...	623	432	...	14
175	614	347	+·001	619	365	+·003	623	384	−·012	September. 15
176	614	303	...	619	320	...	623	336	−·013	16
177	613	260	·000	618	274	+·002	622	288	...	17
178	612	217	...	617	228	...	621	240	−·014	18
179	611	173	−·001	616	183	+·001	620	192	...	19
180	610	130	...	615	137	·000	619	144	−·015	20
181	608	87	−·002	613	91	...	617	96	...	21
182	607	43	...	612	46	−·001	616	48	−·016	22
183	607	0	−·003	612	0	...	616	0	−·017	23
184	606	−45	....	611	−47	−·002	616	−50	...	24
185	604	90	−·004	609	94	...	614	99	−·018	25
186	602	134	...	607	142	−·003	612	149	...	26

TABLE III.—Sunrise from 33° to 35° N. latitude—*cont.*

Day of solar year.	Lat. 33° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. −480″ = −·0055 of day. Total correctn. as fraction of a day. Jehlum. A.D. 1000—1400.	Lat. 34° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. −228″ = −·003 of day. Total correctn. as fraction of a day. Srinagar. A.D. 1000—1400.	Lat. 35° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. −1592″ = −·0185 of day. Total correctn. as fraction of a day. Kabul. A.D. 1000—1400.	Eng. date.
187	+600	−179		+605	−189		+610	−198		Sep. 27
188	597	224	−·005	602	236	−·003	607	248	−·019	28
189	604	269	...	609	283	−·004	614	298	...	29
190	601	314	−·006	606	330	...	611	347	−·020	30
191	588	358	...	593	378	−·005	598	397	−·021	1
192	585	403	−·007	590	425	−·006	595	446	−·022	2
193	581	448	−·008	586	472	...	591	496	...	3
194	578	493	...	583	519	−·007	588	546	−·023	4
195	574	538	−·009	579	566	...	584	595	...	5
196	570	582	...	575	614	−·008	580	645	−·024	6
197	566	627	−·010	571	661	...	576	694	...	7
198	562	672	−·011	567	708	−·009	572	744	−·025	8
199	558	717	...	563	755	...	568	794	−·026	9
200	553	762	−·012	558	802	−·010	563	843	...	10
201	548	806	...	553	850	...	558	893	−·027	11
202	544	851	−·013	549	897	−·011	553	942	−·028	12
203	539	896	...	544	944	−·012	549	992	...	13
204	533	941	−·014	538	991	...	543	1042	−·029	14
205	528	986	...	533	1038	−·013	538	1091	−·030	15
206	523	1030	−·015	528	1086	−·014	533	1141	...	16
207	519	1075	−·016	524	1133	...	529	1191	−·031	17
208	513	1120	...	518	1180	−·015	523	1240	−·032	18
209	507	1165	−·017	512	1227	−·016	517	1290	−·033	19
210	501	1210	−·018	506	1274	−·017	511	1339	...	20
211	495	1254	...	500	1322	...	505	1389	−·034	21
212	488	1299	−·019	493	1369	−·018	498	1438	−·035	22
213	484	1344	−·020	487	1416	−·019	490	1488	...	23
214	477	1394	−·021	480	1468	...	483	1542	−·036	24
215	470	1445	...	473	1520	−·020	476	1597	...	25
216	463	1495	−·022	466	1572	−·021	469	1651	−·037	26
217	456	1546	...	459	1624	−·022	462	1706	−·038	Oct. 27
218	449	1596	−·023	452	1676	...	455	1760	...	28
219	441	1646	...	444	1728	−·023	447	1814	−·039	29
220	434	1697	−·024	437	1780	...	440	1869	−·040	30
221	426	1747	−·025	429	1832	−·024	432	1923	..	31
222	418	1798	−·026	421	1884	−·025	424	1978	−·041	1
223	410	1848	...	413	1936	−·026	416	2032	...	2
224	402	1898	−·027	405	1988	...	408	2086	−·042	3
225	394	1949	−·028	397	2040	−·027	400	2141	−·043	4
226	386	1999	...	389	2092	−·028	392	2195	−·044	5
227	377	2050	−·029	380	2144	−·029	383	2250	−·045	Nov. 6
228	369	2100	−·030	372	2196	...	375	2304	−·046	7
229	360	2150	...	363	2248	−·030	366	2358	−·047	8
230	351	2201	−·031	354	2300	...	357	2413	...	9
231	342	2251	−·032	345	2352	−·031	348	2467	−·048	10
232	333	2302	−·033	336	2404	−·032	339	2522	−·049	11
233	324	2352	...	327	2456	−·033	330	2576	−·050	12
234	314	2402	−·034	317	2508	...	320	2630	...	13
235	305	2453	−·035	308	2560	−·034	311	2685	−·051	14
236	296	2503	...	299	2612	−·035	302	2739	−·052	15
237	287	2554	−·036	290	2664	...	293	2794	...	16
238	277	2604	...	280	2716	−·036	283	2848	−·053	17
239	267	2654	−·037	270	2768	−·037	273	2902	...	18
240	258	2705	...	261	2820	...	264	2957	−·054	19
241	246	2755	−·038	248	2872	−·038	251	3011	−·055	20
242	236	2806	...	238	2924	−·039	241	3066	...	21
243	211	2856	−·039	212	2976	...	213	3120	−·056	22
244	202	2894	−·040	203	3015	−·040	204	3159	...	23
245	192	2932	...	193	3053	...	194	3199	−·057	24
246	182	2970	−·041	183	3092	−·041	184	3238	...	25
			...						−·058	

TABLE III.—Sunrise from 33° to 35° N. latitude—cont.

Day of solar year.	Lat. 33° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −480″ = −·0055 of day. Total correctn. as fraction of a day. Jehlum. A.D. 1000—1400.	Lat. 34° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −228″ = −·003 of day. Total correctn. as fraction of a day. Srinagar. A.D. 1000—1400.	Lat. 35° Eqn. of time in seconds.	☉'s trop. long. in seconds.	Long. −1592″ = −·0185 of day. Total correctn. as fraction of a day. Kabul. A.D. 1000—1400.	Eng. date.
247	+172	−3008	−·042	+173	−3131	−·041	+174	−3278	−·059	Nov. 26
248	162	3046	..	163	3169	−·042	164	3317	...	27
249	152	3084	−·043	153	3208	...	154	3357	−·060	28
250	142	3121	−·044	143	3247	−·043	144	3396	−·061	29
251	132	3159	...	133	3286	−·044	134	3436	...	30
252	122	3197	−·045	123	3324	...	124	3475	−·062	1
253	112	3235	...	113	3363	−·045	114	3515	...	2
254	102	3273	−·046	103	3402	...	104	3554	...	3
255	92	3311	...	93	3440	−·046	94	3594	−·063	4
256	82	3349	−·047	83	3479	...	84	3633	−·064	5
257	72	3387	...	73	3518	−·047	74	3673	...	6
258	62	3425	−·048	63	3557	...	64	3712	−·065	7
259	51	3463	−·049	52	3595	−·048	53	3752	−·066	8
260	41	3501	...	42	3634	−·049	43	3791	...	9
261	31	3539	−·050	32	3673	...	33	3831	−·067	10
262	21	3577	...	22	3711	−·050	23	3870	...	11
263	11	3615	−·051	12	3750	−·051	13	3910	−·068	12
264	− 19	3653	...	− 20	3789	...	− 21	3949	−·069	13
265	29	3691	...	30	3828	−·052	31	3989	...	14
266	39	3728	...	40	3866	...	41	4028	...	15
267	49	3766	−·052	50	3905	...	51	4068	...	16
268	59	3804	...	60	3944	...	61	4107	...	17
269	70	3842	...	71	3982	...	72	4147	...	18
270	80	3880	...	81	4021	...	82	4186	...	19
271	91	3918	...	92	4060	...	93	4225	...	20
272	92	3956	...	93	4099	...	94	4265	...	21
273	93	3994	...	94	4137	...	95	4304	...	22
274	98	4032	−·053	97	4176	...	97	4344	...	23
275	103	4029	...	102	4172	...	102	4339	...	24
276	109	4026	...	108	4168	...	107	4334	...	Dec. 25
277	115	4022	...	114	4164	...	113	4330	...	26
278	120	4019	...	119	4160	...	119	4325	...	27
279	126	4016	...	125	4156	...	124	4320	...	28
280	132	4013	...	131	4152	...	131	4315	...	29
281	137	4010	...	136	4148	...	136	4310	...	30
282	143	4006	...	142	4144	...	141	4306	...	31
283	149	4003	...	148	4140	...	146	4301	...	Jan. 1
284	154	4000	...	153	4136	...	152	4296	...	2
285	160	3997	...	159	4132	...	158	4291	...	3
286	166	3994	...	165	4128	...	163	4286	...	4
287	171	3990	...	170	4124	...	168	4282	...	5
288	177	3987	...	176	4120	...	174	4277	...	6
289	183	3984	...	182	4116	...	180	4272	...	7
290	188	3981	...	187	4112	...	185	4267	...	8
291	194	3978	...	193	4108	...	191	4262	...	9
292	200	3974	...	199	4104	...	197	4258	...	10
293	205	3971	...	204	4100	...	202	4253	...	11
294	211	3968	...	210	4096	...	207	4248	...	12
295	216	3965	...	216	4092	...	213	4242	−·069	13
296	222	3962	−·052	221	4088	...	219	4238	...	14
297	228	3958	...	227	4084	−·051	224	4234	−·068	15
298	233	3955	−·051	233	4080	−·050	229	4229	−·067	16
299	239	3952	−·050	238	4076	...	235	4224	...	17
300	245	3949	...	244	4072	−·049	241	4219	−·066	18
301	250	3946	−·049	249	4068	−·048	246	4214	−·065	19
302	256	3942	...	254	4064	−·047	251	4210	...	20
303	262	3939	...	259	4060	...	256	4205	...	21
304	267	3936	−·048	264	4056	...	261	4200	−·064	22
305	269	3886	−·047	266	4004	...	263	4146	−·063	23

TABLE III.—Sunrise from 33° to 35° N. latitude—*cont.*

Day of solar year.	Lat. 33° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. −480″ = −·0055 of day. Total correctn. as fraction of a day. Jehlum. A.D. 1000—1400.	Lat. 34° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. −228″ = −·003 of day. Total correctn. as fraction of a day. Srinagar. A.D. 1000—1400.	Lat. 35° Eqn. of time in seconds.	⊙'s trop. long. in seconds.	Long. −1592″ = −·0185 of day. Total correctn. as fraction of a day. Kabul. A.D. 1000—1400.	Eng. date.
306	−271	−3835	−·047	−268	−3952	−·046	−265	−4092	−·063	January. 24
307	273	3785	−·046	270	3900	−·045	267	4037	−·062	25
308	275	3735	...	272	3848	...	269	3983	−·061	26
309	277	3684	−·045	274	3797	−·044	271	3929	...	27
310	280	3634	...	277	3745	...	273	3875	−·060	28
311	282	3584	−·044	279	3693	−·043	275	3821	...	29
312	284	3533	−·043	281	3641	−·042	277	3766	−·059	30
313	286	3483	...	283	3589	...	279	3712	−·058	31
314	288	3433	−·042	285	3537	−·041	281	3658	...	1
315	290	3382	...	287	3485	...	283	3604	−·057	2
316	293	3332	−·041	289	3433	−·040	285	3550	−·056	3
317	295	3282	...	291	3382	...	287	3495	...	4
318	297	3231	−·040	293	3330	−·039	289	3441	−·055	5
319	299	3181	...	295	3278	...	291	3387	...	6
320	301	3131	−·039	297	3226	−·038	293	3333	−·054	7
321	303	3080	...	299	3174	−·037	295	3279	−·053	8
322	306	3030	−·038	301	3122	...	297	3224	...	9
323	308	2980	−·037	303	3070	−·036	299	3170	−·052	10
324	310	2929	...	305	3019	...	301	3116	...	11
325	312	2879	−·036	307	2967	−·035	303	3062	−·051	12
326	314	2829	−·035	309	2915	−·034	305	3008	−·050	February. 13
327	316	2779	−·034	311	2863	−·033	307	2953	−·049	14
328	318	2728	−·033	313	2811	−·032	309	2899	−·048	15
329	320	2678	−·032	315	2759	−·031	311	2845	−·047	16
330	322	2628	−·031	317	2707	−·030	313	2791	−·046	17
331	324	2577	−·030	319	2655	−·029	315	2737	−·045	18
332	326	2527	−·029	321	2604	−·028	317	2683	−·044	19
333	328	2477	...	323	2552	−·027	319	2628	−·043	20
334	330	2426	−·028	325	2500	−·026	321	2574	−·042	21
335	332	2376	−·027	327	2448	−·025	323	2520	−·041	22
336	332	2297	−·026	327	2366	−·024	323	2436	−·040	23
337	332	2218	−·025	327	2285	−·023	323	2352	−·039	24
338	333	2138	−·024	328	2203	−·022	324	2268	−·038	25
339	333	2059	−·023	328	2122	−·021	324	2184	−·037	26
340	333	1980	−·022	328	2040	−·020	324	2100	−·036	27
341	334	1901	−·021	329	1958	−·019	325	2016	−·035	28
342	334	1822	−·020	329	1877	−·018	325	1932	−·034	March. 1
343	334	1742	−·019	329	1795	...	325	1848	−·033	2
344	335	1663	−·018	330	1714	−·017	326	1764	−·032	3
345	335	1584	−·017	330	1632	−·016	326	1680	−·031	4
346	335	1505	−·016	330	1550	−·015	326	1596	−·030	5
347	336	1426	...	331	1469	−·014	327	1512	−·029	6
348	336	1346	−·015	331	1387	−·013	327	1423	...	7
349	336	1267	−·014	331	1306	−·012	327	1344	−·028	8
350	337	1188	−·013	332	1224	−·011	328	1260	−·027	9
351	337	1109	−·012	332	1142	−·010	328	1176	−·026	10
352	337	1030	−·011	332	1061	−·009	328	1092	−·025	11
353	338	950	−·010	333	979	−·008	329	1008	−·024	12
354	338	871	−·009	333	898	−·007	329	924	−·023	13
355	338	792	...	333	816	...	329	840	−·022	April. 14
356	339	713	−·008	334	734	−·006	330	756	−·021	15
357	339	634	−·007	334	653	−·005	330	672	−·020	16
358	339	554	−·006	334	571	−·004	330	588	−·019	17
359	340	475	−·005	335	490	−·003	331	504	−·018	18
360	340	396	−·004	335	408	−·002	331	420	−·017	19
361	340	317	−·003	335	326	−·001	331	336	−·016	20
362	341	238	−·002	336	245	−·000	332	252	−·015	21
363	341	158	−·001	336	163	...	332	168	−·014	22
364	341	79	...	336	82	+·001	332	84	−·013	23
365	342	0	·000	337	0	+·002	333	0	−·012	24

TABLE III-A. Latitudes and Longitudes of chief places in British India and the Feudatory States.

(Longitudes are expressed by the difference in seconds of time as compared with Ujjain.)

District.	Town.	Latitude in degrees and decimals of a degree.	Time difference in seconds.
BRITISH TERRITORY.			
Aden Province.			
1 Aden	Aden	12·7	−7348
Ajmere-Merwara Province.			
2 Ajmere	Ajmere	26·5	− 280
	Nazirabad	26·3	− 256
3 Merwara ...	Beawar (Nayanagar).	26·0	− 352
Baluchistan Province.			
4 Quetta—Peshin...	Quetta	30·2	−2104
Bengal Province.			
5 Balasore ...	Balasore	21·5	+2676
6 Bankura	Bankura	23·2	+2708
7 Bhagalpur ...	Bhagalpur	25·2	+2692
8 Burdwan... ...	Burdwan	23·2	+2896
	Howrah	22 5	+3016
9 Champaram ...	Bettiah	26·5	+2092
10 Cuttack.... ...	Cuttack	20·5	+2420
11 Darbhanga ...	Darbhanga	26·2	+2428
12 Gaya	Gaya	24·5	+2216
13 Hooghly	Hoogly and Chinsura.	23·0	+3028
	Serampore	22·7	+3016
14 Midnapore ...	Midnapore	22·5	+2768
15 Monghyr ...	Monghyr	25·3	+2564
16 Murshidabad ...	Berhampore	24·0	+2996
17 Muzaffarpur ...	Hajipur	25·7	+2260
	Muzaffarpur	26·0	+2308
18 Nadia	Krishnagar	23·5	+3056
	Santipur	23·2	+3040
19 Twenty-four Parganas.	Calcutta	22·5	+3020
	Cossipur-Chitpur ...		
	Garden Reach ...		
	Maniktala		
	Naihati	23·0	+3032
	Baranagar	22·7	+3020
	Bhatpara	23·0	+3032
20 Patna	Patna	25·7	+2252
	Bihar	25·2	+2336
	Dinapore	25·7	+2224
21 Puri	Puri	19·8	+2408
22 Ranchi	Ranchi	23·3	+2292
23 Saran	Chapra	25·8	+2148
24 Shahabad ...	Sasaram	25·0	+1976
	Arrah	25·5	+2132
Berar Province.			
25 Akola	Akola	20·7	+ 300
26 Amraoti	Amraoti	21·0	+ 480
27 Ellichpur ...	Ellichpur	21·2	+ 424
Bombay Province.			
28 Ahmadabad ...	Ahmadabad	23·0	− 768
29 Ahmadnagar ...	Ahmadnagar ...	19·0	− 208
30 Belgaum ...	Belgaum	16·0	− 304
31 Bijapur	Bijapur	16·8	− 16
32 Bombay	Bombay	19·0	− 692
33 Broach	Broach	21·7	− 672
34 Dharwar ...	Hubli	15·3	− 152
	Dharwar	15·5	− 184
	Gadag	15·5	− 36
35 Kaira	Nadiad	22·7	− 700
36 Khandesh ...	Dhulia	21·0	− 240

Serial No.	District.	Town.	Latitude in degrees and decimals of a degree.	Time difference in seconds
	Bombay Province—*cont.*			
37	Nasik	Nasik	20·0	− 480
38	Panch Mahal ...	Godhra	22·7	− 520
39	Poona	Poona	18·5	− 464
40	Sholapur	Sholapur	17·7	+ 28
		Pandharpur	17·7	− 84
		Barsi	18·2	− 24
41	Satara	Satara	17·7	− 428
42	Surat	Surat	12·2	− 708
43	Thana	Bandra	19·0	− 708
	Burma Province.			
44	Akyab	Akyab	20·2	+ 4112
45	Amherst	Moulmein	16·5	+ 5244
46	Bassein	Bassein	16·7	+ 4556
47	Henzada	Henzada	17·7	+ 4732
48	Mandalay ...	Mandalay	22·0	+ 4876
49	Prome	Prome	18·8	+ 4664
50	Rangoon ...	Rangoon	16·7	+ 4896
51	Tavoy	Tavoy	14·1	+ 5380
	Central Provinces.			
52	Jubbalpore ...	Jubbalpore	23·2	+ 1000
53	Nagpur	Kamptee	21·2	+ 820
		Nagpur	21·2	+ 800
54	Nimar	Burhanpur	21·3	+ 108
55	Raipur	Raipur	21·2	+ 1408
56	Saugor	Saugor	23·8	+ 712
	Eastern Bengal and Assam Province.			
57	Chittagong ...	Chittagong	23·3	+ 3852
58	Decca	Decca	23·7	+ 3508
		Narayanganj ...		
59	Manipur	Imphal	24·8	+ 4360
60	Pabna	Sirajganj	24·5	+ 3352
61	Rajshahi ...	Rampur-Bolia ...	24·3	+ 3076
	Madras Province.			
62	Bellary	Adoni	15·7	+ 360
		Bellary	15·2	+ 256
63	Chingleput ...	Conjeeveram... ...	12·8	+ 940
64	Coimbatore ...	Coimbatore	11·0	+ 284
65	Ganjām	Berhampur	19·3	+ 2164
66	Gōdāvari ...	Cocanada	17·0	+ 1548
		Rajahmundry ...	17·0	+ 1436
67	Kistna	Bezwada	16·5	+ 1160
		Ellore	16·7	+ 1280
		Masulipatam ...	16·2	+ 1284
68	Guntūr	Guntūr	16·3	+ 1124
69	Kurnool	Kurnool	15·8	+ 548
70	Madras	Madras	13·0	+ 1072
71	Madura	Madura	10·0	+ 560
		Bodinayakkanur ...	10·0	+ 376
		Dindigul	10·3	+ 528
72	Malabar	Calicut	11·2	+ 0
		Cannanore	11·8	− 100
		Palghat	10·8	+ 208
		Tellicherry	11·7	− 72
73	Nellore	Nellore	14·5	+ 1008
74	North Arcot ...	Gudiyāttam	13·0	+ 744
		Vellore	12·9	+ 808
75	Salem	Salem...	11·7	+ 572
76	South Arcot ...	Cuddalore	11·7	+ 956
77	South Kanara ...	Mangalore	12·8	− 224
78	Tanjore	Kumbakōnam ...	11·0	+ 860
		Negapatam	10·7	+ 976

TABLE III-A.—Latitudes and longitudes of chief places in British India and the Feudatory States—*cont.*

(Longitudes are expressed by the difference in seconds of time as compared with Ujjain.)

Serial No.	District.	Town.	Latitude in degrees and decimals of a degree.	Time difference in seconds.
	Madras Province—*cont.*			
78	Tanjore—*cont.*	Tanjore	10·7	+ 804
		Mannargudi	10·7	+ 880
		Māyavaram	11·1	+ 928
79	Tinnevelly	Palamcottah	8·7	+ 472
		Rajapalaiyam	9·5	+ 424
		Srivilliputtur	9·5	+ 440
		Tinnevelly	8·7	+ 456
		Tiruchendur	8·5	+ 560
		Tuticorin	8·8	+ 568
80	Trichinopoly	Trichinopoly	10·8	+ 700
		Srirangam		
81	Vizagapatam	Vizagapatam	17·7	+1804
		Vizianagaram	18·2	+1832
	North-West Frontier Province.			
82	Dera Ismail Khan	Dera Ismail Khan	31·8	−1168
83	Kohat	Kohat	33·6	−1044
84	Peshawar	Peshawar	34·0	−1008
	Punjab Province.			
85	Amritsar	Amritsar	31·7	− 216
86	Delhi	Delhi	28·7	+ 352
87	Dera Ghazi Khan	Dera Ghazi Khan	30·0	−1200
88	Ferozepore	Ferozepur	31·0	− 280
89	Gurdaspur	Batala	30·8	− 140
90	Gujranwala	Gujranwala	32·2	− 384
91	Gurgaon	Rewari	28·2	+ 204
92	Hissar	Bhiwani	28·8	+ 84
93	Jhang	Jhang-Maghiana	31·3	− 828
94	Karnal	Karnal	29·7	+ 288
		Panipat	29·4	
95	Jullundur	Jullundur	31·3	− 48
96	Lahore	Lahore	31·6	− 348
		Kasur	31·1	− 316
97	Ludhiana	Ludhiana	31·0	+ 20
98	Multan	Multan	30·2	−1024
99	Rawalpandi	Rawalpandi	33·6	− 640
100	Rohtak	Rohtak	28·9	+ 192
101	Sialkot	Sialkot	32·5	− 300
	Sindh Province.			
102	Hyderabad	Hyderabad	25·3	−1768
103	Karachi	Karachi	24·8	−2092
104	Sukkur	Shikarpur	28·0	−1708
		Sukkur	27·7	−1652
	United Provinces of Agra and Oudh.			
105	Harodi	Shahabad	27·7	+1000
106	Sitapur	Sitapur	27·6	+1172
	NATIVE STATES.			
	Baroda State.			
107	Baroda	Baroda	22·3	− 608
108	Kadi	Patan (Anhilwad)	23·8	− 868
109	Navasan	Navasan	21·0	− 684
	Bombay Native States.			
110	Cambay	Cambay	22·3	− 748
111	Cutch	Bhuj	23·2	−1436
112	Kathiawar	Bhaunagar	21·7	− 860
		Dhoraji	21·7	−1240
	Bombay Native States—*cont.*			
112	Kathiawar—*cont.*	Junagarah	21·5	−1244
		Navanagar	22·4	−1324
		Porabandar	21·6	−1436
		Rajkot	22·3	−1188
		Wadhwan	22·6	− 972
113	Kolhapur	Kolhapur	16·6	− 364
	Central India Agency.			
114	Rewah	Rewah	24·5	+1324
115	Bhopal	Bhopal	23·2	+ 392
116	Datia	Datia	25·6	+ 644
117	Gwalior	Lashkar	26·2	+ 572
		Ujjain	23·1	+ 0
118	Indore	Indore	22·7	+ 28
119	Iaora	Iaora	23·6	− 156
120	Mandasar in Gwalior.	Mandasar	24·1	− 168
121	Ratlam	Ratlam	23·3	− 176
	Hyderabad State.			
122	Aurangabad	Aurangabad	19·8	− 108
		Jalna		
123	Gulbarga	Gulbarga	17·3	+ 256
124	Hyderabad	Hyderabad	17·3	+ 640
125	Raichur	Raichur	16·2	+ 376
	Kashmir State.			
126	Jammu	Jammu	32·7	− 208
127	Kashmir	Srinagar	34·8	− 228
	Madras Native States.			
128	Cochin	Ernakulam	10·0	+ 120
		Mattancheri	10·0	+ 112
129	Pudukkottai	Pudukkottai	10·3	+ 728
130	Travancore	Alleppey	9·5	+ 132
		Nagercoil	8·1	+ 400
		Trivandrum	8·5	+ 280
	Mysore State.			
131	Bangalore	Bangalore	13·0	+ 432
132	Kolar	Kolar	13·1	+ 564
133	Mysore	Mysore	12·3	+ 212
	Punjab Native States.			
134	Malar Kotla	Malar Kotla	30·5	+ 48
135	Patiala	Patiala	30·3	+ 164
	Rajputana Agency.			
136	Alwar	Alwar	27·6	+ 196
137	Bharatpur	Bharatpur	27·2	+ 412
138	Bikaner	Bikaner	28·0	− 596
139	Jaipur	Sikar	27·6	− 156
		Jaipur	26·9	+ 12
140	Karauli	Karauli	26·5	+ 300
141	Kotah	Kotah	25·1	+ 16
142	Jodhpur	Jodhpur	26·3	− 664
143	Mewar or Udaipur	Udaipur	24·6	− 500
144	Tonk	Tonk	26·1	+ 4
	United Provinces Native States.			
145	Rampur	Rampur	28·8	+ 780

TABLE IV.—Mars.

Data for calculating latitude and geocentric longitude of Mars from 1 B.C. to A.D. 2000.

Mars' mean motion for Centuries.

A.D.	Kaliyuga.	Mean longitude at commencement of solar year.	Longitude of apsis.	Longitude of node.	A.D.	Kaliyuga.	Mean longitude at commencement of solar year.	Longitude of apsis.	Longitude of node.
		Deg.	Deg.	Deg.			Deg.	Deg.	Deg.
1 B.C.	3101 K.Y.	254·7442	130·0274	40·0866	1000 A.D.	4101 K.Y.	140·0144	130·0444	40·0688
100 A.D.	3201	315·2712	130·0291	40·0848	1100	4201	200·5414	130·0461	40·0670
200	3301	15·7982	130 0308	40·0830	1200	4301	261·0684	130·0478	40·0652
300	3401	76·3252	130·0325	40·0813	1300	4401	321·5954	130·0495	40·0634
400	3501	136·8522	130·0342	40·0795	1400	4501	22·1224	130 0512	40·0616
500	3601	197·3793	130·0359	40·0777	1500	4601	82·6495	130·0529	40·0599
600	3701	257·9063	130·0376	40·0759	1600	4701	143·1765	130·0546	40·0581
700	3801	318·4333	130·0393	40·0741	1700	4801	203·7035	130·0563	40·0563
800	3901	18·9603	130 0410	40·0723	1800	4901	264·2305	130·0580	40 0545
900	4001	79·4873	130·0427	40·0706	1900	5001	324·7575	130·0597	40·0527
					2000	5101	25·2846	130·0614	40 0510

Mars' mean motion for odd years.

Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.
1	191·40	11	305·46	21	59·51	31	173·56	41	287·62	51	41·67	61	155·72	71	269·77	81	23·83	91	137·88
2	22·81	12	136·86	22	250·92	32	4·97	42	119·02	52	233·07	62	347·13	72	101·18	82	215·23	92	329·29
3	214·22	13	328·27	23	82·32	33	196·37	43	310·43	53	64·48	63	178·53	73	292 58	83	46·64	93	160·69
4	45·62	14	159·67	24	273·73	34	27·37	44	141·83	54	255·88	64	9·94	74	123·99	84	238·04	94	352 09
5	237·03	15	351·08	25	105·13	35	219·18	45	333·24	55	87·29	65	201·34	75	315·39	85	69·45	95	183·50
6	68·43	16	182·48	26	296·54	36	50·59	46	164·64	56	278 69	66	32·75	76	146·80	86	260 85	96	14·91
7	259·84	17	13·89	27	127·94	37	241·99	47	356·05	57	110·10	67	224·15	77	338 21	87	92·26	97	206·31
8	91·24	18	205·29	28	319·35	38	73·40	48	187·45	58	301·51	68	55·56	78	169·61	88	283·66	98	37·72
9	282·65	19	36·70	29	150·75	39	264·80	49	18·86	59	132·91	69	246·96	79	1·02	89	115·07	99	229·12
10	114·05	20	228·10	30	342·16	40	96·21	50	210·26	60	324·32	70	78·37	80	192·42	90	306·47	100	60·53

Mars' mean motion for days.

Days.	0	1	2	3	4	5	6	7	8	9
					Degrees.					
0	...	0·52	1·05	1·57	2·10	2·62	3·14	3·67	4·19	4·72
1	5·24	5·76	6·29	6 81	7·33	7·86	8·38	8·91	9·43	9·96
2	10·48	11·00	11·52	12·05	12·58	13·10	13·62	14·15	14·67	15·19
3	15·72	16·24	16·77	17·29	17·82	18·34	18·86	19·39	19·91	20·44
4	20·96	21·48	22·01	22·53	23·06	23·58	24·11	24·63	25·15	25·68
5	26·20	26·73	27·25	27·77	28·30	28·82	29·35	29·87	30·39	30·92
6	31·44	31·97	32·49	33·01	33·54	34·07	34·59	35·11	35·63	36·16
7	36·68	37·21	37·73	38·25	38·78	39·30	39·83	40·35	40·87	41·40
8	41·92	42·45	42·97	43·49	44·02	44·54	45·07	45·59	46·11	46·64
9	47·16	47·69	48·21	48·73	49·26	49·78	50·31	50·83	51·35	51·88
10	52·40	52·93	53·45	53·97	54·50	55·02	55·55	56·07	56·59	57·12
11	57·64	58·17	58·70	59 22	59·74	60·26	60·79	61·31	61·84	62·36
12	62·88	63·41	63·93	64·46	64·98	65·50	66·03	66·55	67·08	67·60
13	68·12	68·65	69·17	69·70	70·22	70·74	71·27	71·79	72·32	72·84
14	73·36	73·89	74·41	74·94	75·46	75·98	76·51	77·03	77·56	78·08
15	78·60	79·13	79·65	80·18	80·70	81·22	81·75	82 27	82·80	83 32
16	83·84	84·37	84·89	85·42	85·94	86·46	86·99	87·51	88·04	88·56
17	89·09	89·61	90·13	90·66	91·18	91·71	92·23	92·75	93·28	93·80
18	94·33	94·85	95·37	95·90	96·42	95·95	97·47	97·99	98·52	99·04
19	99·57	100·09	100·61	101·14	101·66	102·19	102·71	103·23	103·76	104·28
20	104·81	105·33	105·85	106·38	106·90	107·43	107·95	108·47	109·00	109·52
21	110·05	110·57	111·09	111·62	112·14	112·67	113·19	113·71	114·24	114·77
22	115·29	115·81	116·33	116·86	117·38	117·91	118·43	118·96	119·46	120·00
23	120·53	121·05	121·58	122·10	122·62	123·15	123·67	124·20	124·72	125·25
24	125·77	126·29	126·82	127·34	127·86	128·39	128·91	129·44	129·96	130·48
25	131·01	131·53	132·06	132·55	133·10	133·63	134·15	134·68	135·20	135·72
26	136·25	136·77	137·30	137·82	138·34	138·87	139·39	139·92	140·44	140·96
27	141·49	142·01	142·54	143·06	143·58	144·11	144·63	145·16	145·68	146·20
28	146·73	147·25	147·78	148·30	148·82	149·35	149·87	150·40	150·92	151·45
29	151·97	152·49	153·02	153·54	154·07	154 59	155·11	155·64	156·16	156·69
30	157·21	157·73	158·26	158·78	159·31	159·83	160·35	160·88	161·40	161·93
31	162·45	162·97	163·50	164·02	164·55	165·07	165·59	166·12	166·64	167·17
32	167·69	168·21	168·74	169·26	169·79	170·31	170·83	171·36	171·88	172·41
33	172·93	173·45	173·98	174·50	175·03	175·55	176·07	176·60	177·12	177·65
34	178·17	178·69	179·22	179·74	180·27	180·79	181·31	181·84	182·36	182·89
35	183·41	183·94	184·46	184·98	185·51	186·03	186·56	187·08	187·60	188·13
36	188·65	189·18	189·70	190·22	190·75	191·27	...	...	...	..

Mars' Annual Eqn. in Deg.

	+	+	-	-
0	0·0	180·0	180·0	360·0
1	2·5	179·5	180·5	357·5
2	5·1	178·9	181·1	354·9
3	7·6	178·4	181·6	352·4
4	10·1	177·8	182·2	349 9
5	12·7	177·3	182·7	347·3
6	15·2	176·8	183·2	344·8
7	17·8	176·2	183·8	342·2
8	20·4	175·7	184·3	339·6
9	23·0	175·1	184·9	337·0
10	25·5	174·5	185·5	334·5
11	28·1	173·9	186·1	331·9
12	30·7	173·4	186·6	329·3
13	33·3	172 8	187·2	326 7
14	35·9	172·2	187·8	324·1
15	38·5	171·5	188·5	321·5
16	41·2	170·9	189·1	318·8
17	43·9	170·3	189·7	316·1
18	46·5	169·6	190·4	313·5
19	49·2	169·0	191·0	310·8
20	51·8	168·3	191·7	308·2
21	54 6	167·5	192·5	305·4
22	57·3	166·8	193·2	302·7
23	60·2	166·0	194·0	299·8
24	63·0	165·3	194·7	297·0
25	65·8	164·5	195·5	294·2
26	68·7	163·6	196·4	291·3
27	71·6	162·6	197·4	288·4
28	74·6	161·7	198·3	285·4
29	77·7	160·7	199·3	282·3
30	80·8	159·6	200·4	279·2
31	84·0	158·5	201·5	276·0
32	87·3	157·3	202·7	272·7
33	90·7	155·9	204·1	269·3
34	94·2	154·5	205·5	265·8
35	97·9	152·8	207·2	262·1
36	101·7	151·0	209·0	258·3
37	106·0	148·7	211·3	254·0
38	110·6	146·2	213·8	249·4
39	116·1	142·7	217·3	243·9
40	124·2	136·5	223·5	235·8
40·15	135·0	...	225·0	...

TABLE IV.—Mars—*cont.*

Mars' anomaly.

+	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9
	Degrees.									
0	0·0	0·5	0·9	1·4	1·9	2·4	2·9	3·4	3·9	4·4
1	4·8	5·3	5·8	6·3	6·7	7·2	7·7	8·2	8·7	9·2
2	9·7	10·2	10·7	11·2	11·7	12·2	12·7	13·2	13·7	14·2
3	14·7	15·2	15·7	16·2	16·7	17·3	17·8	18·3	18·8	19·4
4	19·9	20·4	20·9	21·4	22·0	22·5	23·0	23·6	24·1	24·7
5	25·2	25·7	26·3	26·9	27·4	28·0	28·6	29·1	29·7	30·2
6	30·8	31·4	32·0	32·6	33·2	33·7	34·4	35·0	35·6	36·2
7	36·9	37·5	38·1	38·7	39·4	40·1	40·7	41·4	42·1	42·7
8	43·4	44·1	44·8	45·5	46·3	47·0	47·7	48·5	49·2	50·0
9	50·8	51·6	52·4	53·2	54·2	55·0	55·9	56·8	57·7	58·7
10	59·7	60·7	61·8	62·9	64·0	65·2	66·5	67·7	69·2	70·6
11	72·2	74·1	76·1	78·4	81·2	85·7	...	...	...	...

−	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9
	Degrees.									
0	180·0	180·5	180·9	181·4	181·9	182·4	182·9	183·4	183·9	184·4
1	184·8	185·3	185·8	186·3	186·7	187·2	187·7	188·2	188·7	189·2
2	189·7	190·2	190·7	191·2	191·7	192·2	192·7	193·2	193·7	194·2
3	194·7	195·2	195·7	196·2	196·7	197·3	197·8	198·3	198·8	199·4
4	199·9	200·4	200·9	201·4	202·0	202·5	203·0	203·6	204·1	204·7
5	205·2	205·7	206·3	206·9	207·4	208·0	208·6	209·1	209·7	210·2
6	210·8	211·4	212·0	212·6	213·2	213·7	214·4	215·0	215·6	216·2
7	216·9	217·5	218·1	218·7	219·4	220·1	220·7	221·4	222·1	222·7
8	223·4	224·1	224·8	225·5	226·3	227·9	227·7	229·5	229·2	230·0
9	230·8	231·6	232·4	233·2	234·2	235·0	235·9	236·8	237·7	238·7
10	239·7	240·7	241·8	242·9	244·0	245·2	246·5	247·7	249·2	250·6
11	352·2	254·1	256·1	258·4	261·2	265·7	...	...	...	...

Maximum equation 11·53 for anomaly of 90·00.

+	·9	·8	·7	·6	·5	·4	·3	·2	·1	·0
	Degrees.									
11	...	...	...	...	94·2	98·7	101·6	103·9	105·9	107·8
10	109·4	110·8	112·3	113·5	114·8	116·0	117·1	118·2	119·3	120·3
9	121·3	122·8	123·2	124·1	125·0	125·8	126·8	127·6	128·4	129·2
8	130·0	130·8	131·5	132·3	133·0	133·7	134·5	135·2	135·9	136·6
7	137·3	137·9	138·6	139·3	139·9	140·6	141·3	141·9	142·5	143·1
6	143·8	144·4	145·0	145·6	146·3	146·8	147·4	148·0	148·6	149·2
5	149·8	150·3	150·9	151·4	152·0	152·6	153·1	153·7	154·3	154·8
4	155·3	155·9	156·4	157·0	157·5	158·0	158·6	159·1	159·6	160·1
3	160·6	161·2	161·7	162·2	162·7	163·3	163·8	164·3	164·8	165·3
2	165·8	166·3	166·8	167·3	167·8	168·3	168·8	169·3	169·8	170·3
1	170·8	171·3	171·8	172·3	172·8	173·3	173·7	174·2	174·7	175·2
0	175·6	176·1	176·6	177·1	177·6	178·1	178·6	179·1	179·5	180·0

Maximum equation 11·53 for anomaly of 270·00.

−	·9	·8	·7	·6	·5	·4	·3	·2	·1	·0
	Degrees.									
11	..	...	...	...	274·2	278·7	281·6	283·9	285·9	287·8
10	289·4	290·8	292·3	293·5	294·8	296·0	297·1	298·2	299·3	300·3
9	301·3	302·3	303·2	304·1	305·0	305·8	306·8	307·6	308·4	309·2
8	310·0	310·8	311·5	312·3	313·0	313·7	314·5	315·2	315·9	316·6
7	317·3	317·9	318·6	319·3	319·9	320·6	321·3	321·9	322·5	323·1
6	323·8	324·4	325·0	325·6	326·3	326·8	327·4	328·0	328·6	329·2
5	329·8	330·3	330·9	331·4	332·0	332·6	333·1	333·7	334·3	334·8
4	335·3	335·9	336·4	337·0	337·5	338·0	338·6	339·1	339·6	340·1
3	340·6	341·2	341·7	342·2	342·7	343·3	343·8	344·3	344·8	345·3
2	345·8	346·3	346·8	347·3	347·8	348·3	348·8	349·3	349·8	350·3
1	350·8	351·3	351·8	352·3	352·8	353·3	353·7	354·2	354·7	355·2
0	355·6	356·1	356·6	357·1	357·6	358·1	358·6	359·1	359·5	360·0

TABLE IV.—Mercury.

Data for calculating latitude and geocentric longitude of Mercury from 1 B.C. to A.D. 2000

Mercury's mean motion for centuries.

A.D.	Kaliyuga.	Mean longitude at commencement of solar year.	Longitude of apsis.	Longitude of node.
		Deg.	Deg.	Deg.
1 B.C.	3101 K.Y.	209·3843	220·4118	20·7580
100 A.D.	3201	285·4023	220·4149	20·7539
200	3301	1·4203	220·4180	20·7499
300	3401	77·4383	220·4210	20·7458
400	3501	153·4563	220·4241	20·7417
500	3601	229·4744	220·4272	20·7377
600	3701	305·4924	220·4302	20·7336
700	3801	21·5104	220·4333	20·7295
800	3901	97·5284	220·4363	20·7255
900	4001	173·5464	220·4394	20·7214
1000 A.D.	4101 K.Y.	249·5645	220·4425	20·7173
1100	4201	325·5825	220·4455	20·7133
1200	4301	41·6005	220·4486	20·7092
1300	4401	117·6185	220·4517	20·7051
1400	4501	193·6365	220·4547	20·7011
1500	4601	269·6546	220·4578	20·6970
1600	4701	345·6726	220·4609	20·6929
1700	4801	61·6906	220·4639	20·6889
1800	4901	137·7086	220·4670	20·6848
1900	5001	213·7266	220·4701	20·6807
2000	5101	289·7447	220·4731	20·6767

Mercury's mean motion for odd years.

Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.
1	54·76	11	242·36	21	69·96	31	257·57	41	85·17	51	272·77	61	100·37	71	287·97	81	115·57	91	303·18
2	109·52	12	297·12	22	124·72	32	312·33	42	139·93	52	327·53	62	155·13	72	342·73	82	170·38	92	357·94
3	164·28	13	251·88	23	179·48	33	7·09	43	194·69	53	22·29	63	209·89	73	37·49	83	225·09	93	52·70
4	219·04	14	46·64	24	234·24	34	61·85	44	249·45	54	77·05	64	264·65	74	92·25	84	279·85	94	107·46
5	273·80	15	101·40	25	289·00	35	116·61	45	304·21	55	131·81	65	319·41	75	147·01	85	334·61	95	162·22
6	328·56	16	156·16	26	343·76	36	171·37	46	358·97	56	186·57	66	14·17	76	201·77	86	29·37	96	216·98
7	23·32	17	210·92	27	38·52	37	226·13	47	53·73	57	241·33	67	68·93	77	256·53	87	84·13	97	271·74
8	78·08	18	265·68	28	93·28	38	280·89	48	108·49	58	296·09	68	123·69	78	311·29	88	138·89	98	326·50
9	132·84	19	320·44	29	148·04	39	335·65	49	163·25	59	350·85	69	178·45	79	6·05	89	193·66	99	21·26
10	187·60	20	15·20	30	202·80	40	30·41	50	218·01	60	45·61	70	233·21	80	60·81	90	248·42	100	76·02

TABLE IV.—Mercury—*cont.*

Mercury's mean motion for days.

Days.	0	1	2	3	4	5	6	7	8	9
				Degrees.						
0	...	4·09	8·18	12·28	16·37	20·46	24·55	28·65	32·74	36·83
1	40·92	45·02	49·11	53·20	57·29	61·38	65·48	69·57	73·66	77·75
2	81·87	85·94	90·03	94·12	98·22	102·31	106·40	110·49	114·59	118·68
3	122·77	126·86	130·95	135·05	139·14	143·23	147·32	151·42	155·51	159·60
4	163·69	167·79	171·88	175·97	180·06	184·15	188·25	192·34	196·43	200·52
5	204·62	208·71	212·80	216·89	220·99	225·08	229·17	233·26	237·36	241·45
6	245·54	249·63	253·72	257·82	261·91	266·00	270·09	274·19	278·28	282·37
7	286·46	290·56	294·65	298·74	302·83	306·92	311·02	315·11	319·20	323·29
8	327·39	331·48	335·57	339·66	343·76	347·85	351·94	356·03	0·13	4·22
9	8·31	12·40	16·49	20·59	24·68	28·77	32·86	36·96	41·05	45·14
10	49·23	53·33	57·42	61·51	65·60	69·69	73·79	77·88	81·97	86·06
11	90·16	94·25	98·34	102·43	106·53	110·62	114·71	118·80	122·90	126·99
12	131·08	135·17	139·26	143·36	147·45	151·54	155·63	159·73	163·82	167·91
13	172·00	176·10	180·19	184·28	188·37	192·47	196·56	200·65	204·74	208·83
14	212·93	217·02	221·11	225·20	229·30	233·39	237·48	241·57	245·67	249·76
15	253·85	257·94	262·03	266·13	270·22	274·31	278·40	282·50	286·59	290·68
16	294·77	298·87	302·96	307·05	311·14	315·24	319·33	323·42	327·51	331·60
17	335·70	339·79	343·88	347·97	352·07	356·16	0·25	4·34	8·44	12·53
18	16·62	20·71	24·80	28·90	32·99	37·08	41·17	45·27	49·36	53·45
19	57·54	61·64	65·73	69·82	73·91	78·01	82·10	86·19	90·28	94·37
20	98·47	102·56	106·65	110·74	114·84	118·93	123·02	127·11	131·21	135·30
21	139·39	143·48	147·58	151·67	155·76	159·85	163·94	168·04	172·98	176·22
22	180·31	184·41	188·50	192·59	196·68	200·78	204·87	208·96	213·05	217·15
23	221·24	225·33	229·42	233·51	237·61	241·70	245·80	249·88	253·98	258·07
24	262·16	266·25	270·35	274·44	278·53	282·62	286·71	290·80	294·90	298·99
25	303·08	307·18	311·27	315·36	319·45	323·55	327·64	331·73	335·82	339·92
26	344·01	348·10	352·19	356·28	0·38	4·47	8·56	12·65	16·75	20·84
27	24·93	29·02	33·12	37·21	41·30	45·39	49·49	53·58	57·67	61·76
28	65·85	69·95	74·04	78·13	82·22	86·32	90·41	94·50	98·59	102·69
29	106·78	110·87	114·96	119·05	123·15	127·24	131·33	135·42	139·52	143·61
30	147·70	151·79	155·89	159·98	164·07	168·16	172·26	176·35	180·44	184·53
31	188·62	192·72	196·81	200·90	204·99	209·09	213·18	217·27	221·36	225·46
32	229·55	233·64	237·73	241·82	245·92	250·00	254·10	258·19	262·29	266·38
33	270·47	274·56	278·66	282·75	286·84	290·93	295·03	299·12	303·21	307·30
34	311·39	315·49	319·58	323·67	327·76	331·86	335·95	340·04	344·13	348·23
35	352·32	356·41	0·50	4·60	8·69	12·78	16·87	20·96	25·06	29·15
36	33·24	37·33	41·43	45·52	49·61	53·70	...	...	...	...

Mercury's annual equation.

	...	—
	Degrees.	
0	0·0	360·0
1	3·7	356·3
2	7·4	352·6
3	11·2	348·8
4	14·9	345·1
5	18·7	341·3
6	22·5	337·5
7	26·4	333·6
8	30·2	329·8
9	34·7	325·3
10	38·2	321·8
11	42·3	317·7
12	46·5	313·5
13	50·7	309·3
14	55·2	304·8
15	59·8	300·2
16	64·6	295·4
17	69·8	290·2
18	75·4	284·6
19	81·6	278·4
20	88·7	271·3
21	98·6	261·4
21·5	112·2	247·8
	...	—
21	123·7	236·3
20	131·5	228·5
19	136·6	223·4
18	140·7	219·3
17	144·3	215·7
16	147·4	212·6
15	150·3	209·7
14	152·9	207·1
13	155·3	204·7
12	157·6	202·4
11	159·8	200·2
10	161·9	198·1
9	163·9	196·1
8	165·8	194·2
7	167·7	192·3
6	169·5	190·5
5	171·3	188·7
4	173·1	186·9
3	174·8	185·2
2	176·6	183·4
1	178·3	181·7
0	180·0	180·0

Mercury's anomaly.

	...	...	—	—
		Degrees.		
0·0	0·0	180·0	180·0	360·0
0·1	1·2	178·8	181·2	358·8
0·2	2·4	177·6	182·4	357·6
0·3	3·6	176·4	183·6	356·4
0·4	4·9	175·1	184·9	355·1
0·5	6·0	174·0	186·0	354·0
0·6	7·2	172·8	187·2	352·8
0·7	8·5	171·5	188·5	351·5
0·8	9·7	170·3	189·7	350·3
0·9	11·0	169·0	191·0	349·0
1·0	12·2	167·8	192·2	347·8
1·1	13·5	166·5	193·5	346·5
1·2	14·7	165·3	194·7	345·3
1·3	16·1	163·9	196·1	343·9
1·4	17·4	162·6	197·4	342·6
1·5	18·7	161·3	198·7	341·3
1·6	20·1	159·9	200·1	339·9
1·7	21·5	158·5	201·5	338·5
1·8	22·7	157·3	202·7	337·3
1·9	24·2	155·8	204·2	335·8
2·0	25·6	154·4	205·6	334·4
2·1	27·0	153·0	207·0	333·0
2·2	28·5	151·5	208·5	331·5
2·3	29·9	150·1	209·9	330·1
2·4	31·4	148·6	211·4	328·6
2·5	33·0	147·0	213·0	327·0
2·6	34·5	145·5	214·5	325·5
2·7	36·0	144·0	216·0	324·0
2·8	37·7	142·3	217·7	322·3
2·9	39·4	140·6	219·4	320·6
3·0	41·2	138·8	221·2	318·8
3·1	42·9	137·1	222·9	317·1
3·2	44·7	135·3	224·7	315·3
3·3	46·6	133·4	226·6	313·4
3·4	48·5	131·5	228·5	311·5
3·5	50·6	129·4	230·6	309·4
3·6	52·7	127·3	232·7	307·3
3·7	55·0	125·0	235·0	305·0
3·8	57·5	122·5	237·5	302·5
3·9	60·0	120·0	240·0	300·0
4·0	63·0	117·0	243·0	297·0
4·1	66·0	114·0	246·0	294·0
4·2	69·7	110·2	249·7	290·2
4·3	74·0	106·0	254·0	286·0
4·4	80·5	99·5	260·5	279·5
4·5	90·0	90·0	270·0	270·0

TABLE IV.—Jupiter.

Data for calculating latitude and geocentric longitude of Jupiter from B.C.1 to A.D. 2000.

Jupiter's mean motion for centuries.

A.D.	Kaliyuga.	Mean longitude at commencement of solar year.	Longitude of apsis.	Longitude of node.
		Deg.	Deg.	Deg.
1 B.C.	3101 K.Y.	163·1655	171·2250	79·6967
100 A.D.	3201	317·9101	171·2325	79·6952
200	3301	112·6547	171·2400	79·6938
300	3401	267·3993	171·2475	79·6923
400	3501	62·1439	171·2550	79·6909
500	3601	216·8885	171·2625	79·6894
600	3701	11·6331	171·2700	79·6880
700	3801	166·3778	171·2776	79·6865
800	3901	321·1225	171·2851	79·6851
900	4001	115·8671	171·2926	79·6836

A.D.	Kaliyuga.	Mean longitude at commencement of solar year.	Longitude of apsis.	Longitude of node.
		Deg.	Deg.	Deg.
1000 A.D.	4101 K.Y.	270·6117	171·3001	79·6822
1100	4201	65·3563	171·3076	79·6807
1200	4301	220·1009	171·3151	79·6793
1300	4401	14·8455	171·3226	79·6778
1400	4501	169·5901	171·3301	79·6764
1500	4601	324·3347	171·3376	79·6749
1600	4701	119·0793	171·3451	79·6735
1700	4801	273·8239	171·3526	79·6720
1800	4901	68·5685	171·3601	79·6706
1900	5001	223·3130	171·3676	79·6691
2000	5101	18·0576	171·3752	79·6677

TABLE IV—Jupiter—*cont.*

Jupiter's mean motion for Odd Years. (Used at p. 97 of Text.)

Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.
1	30·35	11	333·82	21	277·30	31	220·77	41	164·24	51	107·72	61	51·19	71	354·67	81	298·14	91	241·62
2	60·69	12	4·17	22	307·64	32	251·12	42	194·59	52	138·07	62	81·54	72	25·02	82	328·49	92	271·96
3	91·04	13	34·52	23	337·99	33	281·46	43	224·94	53	168·41	63	111·89	73	55·36	83	358·84	93	302·31
4	121·39	14	64·86	24	8·34	34	311·81	44	255·29	54	198·76	64	142·24	74	85·71	84	29·18	94	332·66
5	151·74	15	95·21	25	38·69	35	342·16	45	285·63	55	229·11	65	172·58	75	116·06	85	59·53	95	3·01
6	182·08	16	125·56	26	69·03	36	12·51	46	315·98	56	259·46	66	202·93	76	146·41	86	89·88	96	33·35
7	212·43	17	155·91	27	99·38	37	42·85	47	346·33	57	289·80	67	233·28	77	176·75	87	120·23	97	63·70
8	242·78	18	186·25	28	129·73	38	73·20	48	16·68	58	320·15	68	263·63	78	207·10	88	150·57	98	94·05
9	273·13	19	216·60	29	160·07	39	103·55	49	47·02	59	350·50	69	293·97	79	237·45	89	180·92	99	124·40
10	303·47	20	246·95	30	190·42	40	133·90	50	77·37	60	20·85	70	324·32	80	267·80	90	211·27	100	154·74

Jupiter's mean motion for Days. (Used at p. 97 of Text.)

Days.	0	1	2	3	4	5	6	7	8	9
	Degrees.									
0		0·80	0·17	0·25	0·33	0·41	0·50	0·58	0·66	0·75
1	0·83	0·91	1·00	1·08	1·16	1·25	1·33	1·41	1·50	1·58
2	1·66	1·74	1·83	1·91	1·99	2·07	2·16	2·24	2·33	2·41
3	2·49	2·58	2·66	2·74	2·82	2·91	2·99	3·07	3·16	3·24
4	3·32	3·41	3·49	3·57	3·66	3·74	3·82	3·90	3·99	4·07
5	4·15	4·24	4·32	4·40	4·49	4·57	4·65	4·74	4·82	4·90
6	4·99	5·07	5·15	5·23	5·32	5·40	5·48	5·57	5·65	5·73
7	5·82	5·90	5·98	6·07	6·15	6·23	6·31	6·40	6·48	6·56
8	6·65	6·73	6·81	6·90	6·98	7·06	7·15	7·23	7·31	7·39
9	7·48	7·56	7·64	7·73	7·81	7·89	7·98	8·06	8·14	8·23
10	8·31	8·39	8·47	8·56	8·64	8·72	8·81	8·89	8·97	9·06
11	9·14	9·22	9·31	9·39	9·47	9·55	9·64	9·72	9·80	9·89
12	9·97	10·05	10·14	10·22	10·30	10·39	10·47	10·55	10·64	10·72
13	10·80	10·88	10·97	11·05	11·13	11·22	11·30	11·38	11·47	11·55
14	11·63	11·72	11·80	11·88	11·96	12·05	12·13	12·21	12·30	12·38
15	12·46	12·55	12·63	12·71	12·80	12·88	12·96	13·04	13·13	13·21
16	13·29	13·38	13·46	13·54	13·63	13·71	13·79	13·88	13·96	14·04
17	14·13	14·21	14·29	14·37	14·46	14·54	14·62	14·71	14·79	14·87
18	14·96	15·04	15·12	15·21	15·29	15·37	15·45	15·54	15·62	15·70

Days.	0	1	2	3	4	5	6	7	8	9
	Degrees.									
19	15·79	15·87	15·95	16·04	16·12	16·20	16·29	16·37	16·45	16·53
20	16·62	16·70	16·78	16·87	16·95	17·03	17·12	17·20	17·28	17·37
21	17·45	17·53	17·61	17·70	17·78	17·86	17·95	18·03	18·11	18·20
22	18·28	18·36	18·45	18·53	18·61	18·70	18·78	18·86	18·94	19·03
23	19·11	19·19	19·28	19·36	19·44	19·53	19·61	19·69	19·78	19·86
24	19·94	20·02	20·11	20·19	20·27	20·36	20·44	20·52	20·61	20·69
25	20·77	20·86	20·94	21·02	21·11	21·19	21·27	21·35	21·44	21·52
26	21·60	21·69	21·77	21·85	21·94	22·02	22·10	22·18	22·27	22·35
27	22·43	22·52	22·60	22·68	22·77	22·85	22·93	23·02	23·10	23·18
28	23·27	23·35	23·43	23·51	23·60	23·68	23·76	23·85	23·93	24·01
29	24·10	24·18	24·26	24·35	24·43	24·51	24·59	24·68	24·76	24·84
30	24·93	25·01	25·09	25·18	25·26	25·34	25·43	25·51	25·59	25·67
31	25·76	25·84	25·92	26·01	26·09	26·17	26·26	26·34	26·42	26·51
32	26·59	26·67	26·75	26·84	26·92	27·00	27·09	27·17	27·25	27·34
33	27·42	27·50	27·59	27·67	27·75	27·84	27·92	28·00	28·08	28·17
34	28·25	28·33	28·42	28·50	28·58	28·67	28·75	28·83	28·92	29·00
35	29·08	29·16	29·25	29·33	29·41	29·50	29·58	29·66	29·75	29·83
36	29·91	30·00	30·08	30·16	30·24	30·33	...	...	...	...

Jupiter's Annual Equation. (Used at p. 97 of Text.)

+	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9
	Degrees.									
0	0·0	0·6	1·2	1·8	2·4	3·1	3·7	4·3	4·9	5·5
1	6·1	6·7	7·4	8·0	8·6	9·2	9·8	10·4	11·1	11·7
2	12·2	12·9	13·5	14·1	14·7	15·4	16·0	16·6	17·2	17·9
3	18·5	19·1	19·7	20·4	21·0	21·6	22·2	22·9	23·5	24·2
4	24·8	25·4	26·1	26·7	27·4	28·0	28·6	29·2	29·9	30·6
5	31·2	31·9	32·6	33·2	33·9	34·5	35·2	35·9	36·6	37·2
6	37·9	38·6	39·3	40·0	40·7	41·4	42·0	42·8	43·5	44·2
7	44·9	45·7	46·4	47·2	47·9	48·6	49·4	50·2	50·9	51·7
8	52·4	53·2	54·0	54·8	55·7	56·4	57·3	58·2	59·0	59·8
9	60·7	61·6	62·5	63·4	64·4	65·3	66·3	67·2	68·3	69·4
10	70·4	71·5	72·7	73·9	75·0	76·4	77·6	79·0	80·5	82·0
11	83·7	85·5	87·3	90·0	93·0	97·5	...	..	...	...

−	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9
	Degrees.									
0	180·0	180·4	180·8	181·3	181·7	182·1	182·5	182·9	183·3	183·7
1	184·1	184·5	185·0	185·4	185·8	186·2	186·6	187·0	187·5	187·9
2	188·3	188·7	189·1	189·6	190·0	190·4	190·8	191·3	191·7	192·1
3	192·5	193·0	193·4	193·8	194·3	194·7	195·1	195·5	196·0	196·4
4	196·9	197·3	197·8	198·2	198·6	199·1	199·6	200·0	200·5	200·9
5	201·4	201·8	202·3	202·8	203·2	203·7	204·2	204·7	205·2	205·6
6	206·1	206·6	207·1	207·6	208·1	208·6	209·1	209·6	210·1	210·7
7	211·2	211·7	212·3	212·8	213·4	213·9	214·5	215·1	215·6	216·2
8	216·8	217·4	217·9	218·6	219·2	219·8	220·4	221·1	221·8	222·4
9	223·2	223·8	224·6	225·3	226·0	226·8	227·6	228·3	229·2	229·9
10	230·9	231·8	232·8	233·8	234·8	236·0	237·0	238·1	239·4	240·8
11	242·3	243·8	245·8	247·8	250·5	255·0	...	...	..	...

Maximum Equation 11·54 for Anomaly of 103·00.

+	·9	·8	·7	·6	·5	·4	·3	·2	·1	·0
	Degrees.									
11	...	...		...	105·0	109·5	112·2	114·2	116·2	117·7
10	119·2	120·6	121·9	123·0	124·0	125·2	126·2	127·2	128·2	129·1
9	130·1	130·8	131·7	132·4	133·2	134·0	134·7	135·4	136·2	136·8
8	137·6	138·2	138·9	139·6	140·2	140·8	141·4	142·1	142·6	143·2
7	143·8	144·4	144·9	145·5	146·1	146·6	147·2	147·7	148·3	148·8
6	149·3	149·9	150·4	150·9	151·4	151·9	152·4	152·9	153·4	153·9
5	154·4	154·8	155·3	155·8	156·3	156·8	157·2	157·7	158·2	158·6
4	159·1	159·5	160·0	160·4	160·9	161·4	161·8	162·2	162·7	163·1
3	163·6	164·0	164·5	164·9	165·3	165·7	166·2	166·6	167·0	167·5
2	167·9	168·3	168·7	169·2	169·6	170·0	170·4	170·9	171·3	171·7
1	172·1	172·5	173·0	173·4	173·8	174·2	174·6	175·0	175·5	175·9
0	176·3	176·7	177·1	177·5	177·9	178·3	178·7	179·2	179·6	180·0

Maximum Equation 11·54 for Anomaly of 257·00.

−	·9	·8	·7	·6	·5	·4	·3	·2	·1	·0
	Degrees.									
11	...	...	...	...	262·5	267·0	270·0	272·5	274·5	276·3
10	278·0	279·5	281·0	282·4	283·6	285·0	286·4	287·3	288·5	289·6
9	290·6	291·7	292·8	293·7	294·7	295·6	296·6	297·5	298.4	299·3
8	300·2	301·0	301·8	302·7	303·6	304·3	305·2	306·0	306·8	307·6
7	308·3	309·1	309·8	310·6	311·4	312·1	312·8	313·6	314·3	315·1
6	315·8	316·5	317·2	318·0	318·6	319·3	320·0	320·7	321·4	322·1
5	323·8	323·4	324·1	324·8	325·5	326·1	326·8	327·4	328·1	328·8
4	329·4	330·1	330·8	331·4	332·0	332·6	333·3	333·2	334·6	335·9
3	335·8	336·5	337·1	337·8	338·4	339·0	339·6	340·3	340·9	341·5
2	342·1	342·8	343·4	344·0	344·6	345·3	345·9	346·5	347·1	347·8
1	348·3	348·9	349·6	350·2	350·8	351·4	352·0	352·6	353.3	353·9
0	354·5	355·1	355·7	356·3	356·9	357·6	358·2	358·8	359·4	360·0

TABLE IV—Jupiter—*cont.*

Jupiter's Anomaly. (Used at p. 97 of Text.)

+	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9
	Degrees.									
0	0·0	1·1	2·2	3·2	4·4	5·5	6·6	7·7	8·8	9·9
1	11·0	12·2	13·3	14·5	15·6	16·7	17·9	19·1	20·2	21·5
2	22·6	23·9	25·1	26·4	27·6	28·9	30·2	31·5	32·9	34·1
3	35·5	37·0	38·4	39·9	41·4	42·9	44·5	46·1	47·7	49·5
4	51·2	53·1	55·0	57·1	59·2	61·7	64·0	67·0	70·0	74·0
5	77·5	90·0	...	...	...	...	...	...	...	...

−	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9
	Degrees.									
0	180·0	181·1	182·2	183·2	184·4	185·5	186·6	187·7	188·8	189·9
1	191·0	192·2	193·3	194·5	195·6	196·7	197·9	199·0	200·2	201·5
2	202·6	203·9	205·1	206·4	207·6	208·9	210·2	211·5	212·9	214·1
3	215·5	217·0	218·4	219·9	221·4	222·9	224·5	226·1	227·7	229·5
4	231·2	233·1	235·0	237·1	239·2	241·7	244·0	247·0	250·2	254·0
5	257·5	270·0	...	...	...	...	...	...	...	...

Maximum Equation 5·0994 for Anomaly of 90·00

+	·9	·8	·7	·6	·5	·4	·3	·2	·1	·0
	Degrees.									
5	...	...	...	...	...	...	...	...	90·0	102·5
4	106·0	110·0	113·0	116·0	118·3	120·8	122·9	125·0	126·9	128·8
3	130·5	132·3	133·9	135·5	137·1	138·6	140·1	141·6	143·0	144·5
2	145·9	147·1	148·5	149·8	151·1	152·4	153·6	154·9	156·1	157·4
1	158·5	159·8	160·9	162·1	163·3	164·4	165·5	166·7	167·8	169·0
0	170·1	171·2	172·3	173·4	174·5	175·6	176·8	177·8	178·9	180·0

Maximum Equation 5·0994 for Anomaly of 270·00

−	·9	·8	·7	·6	·5	·4	·3	·2	·1	·0
	Degrees.									
5	...	...	...	...	...	...	...	...	270·0	282·5
4	286·0	290·0	293·0	296·0	298·3	300·8	302·9	305·0	306·9	308·8
3	310·5	312·3	313·9	315·5	317·1	318·6	320·1	321·6	323·0	324·5
2	325·9	327·1	328·5	329·8	331·1	332·4	333·6	334·9	336·1	337·1
1	338·5	339·8	340·9	342·1	343·3	344·4	345·5	346·7	347·8	349·0
0	350·1	351·2	352·3	353·4	354·5	355·6	356·8	357·8	358·9	360·0

TABLE IV—Venus.

Data for calculating Latitude and geocentric Longitude of Venus from B.C. 1 to A.D. 2000.

(For Centuries B.C. see p. 331.)

Venus' mean motion for Centuries. (Used at p. 95 of Text.)

A.D.		Kaliyuga.		Mean long. at commencement of Solar Year.	Longitude of apsis.	Longitude of node.
				Deg.	Deg.	Deg.
1	**B.C.**	3101	K.Y.	303·2772	79·7837	59·8039
100	**A.D.**	3201		142·2624	79·7882	59·7964
200		3301		341·2475	79·7926	59·7889
300		3401		180·2327	79·7971	59·7814
400		3501		19·2178	79·8016	59·7738
500		3601		218·2030	79·8060	59·7663
600		3701		57·1882	79·8105	59·7588
700		3801		256·1733	79·8149	59·7513
800		3901		95·1585	79·8194	59·7438
900		4001		294·1436	79·8238	59·7363
1000	**A.D.**	4101	K.Y.	133·1288	79·8283	59·7288
1100		4201		332·1140	79·8328	59·7213
1200		4301		171·0991	79·8372	59·7138
1300		4401		10·0843	79·8417	59·7063
1400		4501		209·0694	79·8461	59·6988
1500		4601		48·0546	79·8506	59·6913
1600		4701		247·0398	79·8550	59·6838
1700		4801		86·0249	79·8595	59·6763
1800		4901		285·0101	79·8639	59·6687
1900		5001		123·9952	79·8684	59·6612
2000		5101		322·9804	79·8729	59·6537

Venus' mean motion for Odd Years. (Used at p. 95 of Text.)

Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.
1	225·19	**11**	317·09	**21**	48·99	**31**	140·88	**41**	232·78	**51**	324·68	**61**	56·58	**71**	148·48	**81**	240·38	**91**	332·28
2	90·38	**12**	182·28	**22**	274·18	**32**	6·07	**42**	97·97	**52**	189·87	**62**	281·77	**72**	13·67	**82**	105·57	**92**	197·47
3	315·57	**13**	47·47	**23**	139·37	**33**	231·26	**43**	323·16	**53**	55·06	**63**	146·96	**73**	238·86	**83**	330·76	**93**	62·66
4	180·76	**14**	272·66	**24**	4·56	**34**	96·45	**44**	188·35	**54**	280·25	**64**	12·15	**74**	104·05	**84**	195·95	**94**	287·85
5	45·95	**15**	137·85	**25**	229·75	**35**	321·64	**45**	53·54	**55**	145·44	**65**	237·34	**75**	329·24	**85**	61·14	**95**	153·04
6	271·14	**16**	3·04	**26**	94·94	**36**	186·83	**46**	278·73	**56**	10·63	**66**	102·53	**76**	194·43	**86**	286·33	**96**	18·23
7	136·33	**17**	228·23	**27**	320·13	**37**	52·02	**47**	143·92	**57**	235·82	**67**	327·72	**77**	59·62	**87**	151·52	**97**	243·42
8	1·52	**18**	93·42	**28**	185·32	**38**	277·21	**48**	9·11	**58**	101·01	**68**	192·91	**78**	284·81	**88**	16·71	**98**	108·60
9	226·71	**19**	318·61	**29**	50·51	**39**	142·40	**49**	234·30	**59**	326·20	**69**	58·10	**79**	150·00	**89**	241·90	**99**	333·79
10	91·90	**20**	183·80	**30**	275·70	**40**	7·59	**50**	99·49	**60**	191·39	**70**	283·29	**80**	15·19	**90**	107·09	**100**	198·98

TABLE IV—Venus—*cont.*

Venus' mean motion for Days. (P. 95 of Text.)

Days.	0	1	2	3	4	5	6	7	8	9
					Degrees.					
0	...	1·60	3·20	4·81	6 41	8·01	9·61	11·21	12·82	14·42
1	16·02	17·62	19·23	20·83	22·43	24·03	25·63	27·24	28·84	30·44
2	32·04	33·64	35·25	36·65	38·45	40·05	41·65	43·26	44·86	46·46
3	48 06	49·67	51·27	52·87	54·47	56.07	57·68	59·28	60·88	62·48
4	64·08	65·68	67·29	68·89	70·49	72·09	73·70	75·30	76·90	78·50
5	80·11	81·71	83·31	84·91	86·51	88·12	89·72	91·32	92·32	94·53
6	96·13	97·73	99·33	100·93	102·54	104·14	105·74	107·34	108·94	110·55
7	112·15	113·75	115·35	116·95	118·56	120·16	121·76	123·36	124·97	126·57
8	128·70	129·77	131·37	132·98	134·58	136·18	137·78	139·38	140·99	142·59
9	144·19	145·79	147·40	149·00	150·60	152·20	153·80	155·41	157·01	158·61
10	160·21	161·81	163·42	165·02	166·62	168·22	169·83	171·43	173·03	174·63
11	176·23	177·84	179·44	181·04	182·64	182·24	185·85	187·45	189·05	190·65
12	192·25	193·86	195·46	197·06	198 66	200·27	201·87	203·47	205·07	206·67
13	208·28	209·88	211·48	213·08	214·69	216·29	217·89	219·49	221·09	222·70
14	224·30	225·90	227·50	229·10	230·71	232·31	233·91	235·51	237·11	238·72
15	240·32	241·92	243·52	245·13	246·73	248·33	249·93	251·53	253·14	254·74
16	256·34	257·94	259·54	261·15	262·75	264·35	265·95	267 56	269·16	270·76
17	272 36	273·96	275·57	277·17	278·77	280·37	281·97	283·58	285·18	286·78
18	288·38	289·98	291·59	293·19	294·79	296·39	297·99	299·60	301·20	302·80
19	304·40	306·01	307·61	309·21	310·81	312·41	314·02	315·62	317·22	318·82
20	320·43	322·03	323·63	325·23	326·83	328·44	330·04	331·64	333·24	334·84
21	336·45	338·05	339·65	341·25	342·86	344·46	346·06	347·66	349·26	350·87
22	352·47	354·07	355·67	357·27	358·88	0·48	2·08	3·68	5·29	6·89
23	8·49	10·09	11·69	13·30	14·90	16·50	18·10	19 70	21·31	22·91
24	24·51	26·11	27·72	29·32	30·92	32·52	34·12	35·73	37·33	38·93
25	40·53	42·13	43·74	45·34	46·94	48·54	50·15	51·75	53·35	54·95
26	56·55	58·16	59 76	61·36	62·96	64·56	66·17	67·77	69·37	70·97
27	72·57	74·17	75·78	77·38	78·98	80·59	82·19	83·79	85·39	86·99
28	88·60	90·20	91·80	93·40	95·00	96·61	98·21	99·81	101·41	103·02
29	104·62	106·22	107·82	109·42	111·03	112·63	114·23	115·83	117·43	119·04
30	120·64	122·24	123·84	125·45	127·05	128·65	130·25	131·85	133·46	135·06
31	136·66	138·26	139·86	141·47	143·07	144·67	146·27	147·87	149·48	151·08
32	152·68	154·28	155·89	157·49	159·09	160·69	162·29	163 90	165·50	167·10
33	168·70	170·30	171·91	173·51	175·11	176·71	178·32	179·92	181·52	183·12
34	184·72	186·33	187·93	189·53	191·13	192·73	194·34	195·94	197·54	199·14
35	200 75	202·35	203·95	205·55	207·15	208·76	210·36	211·96	213·56	215·16
36	216·77	218·37	219·97	221·57	223·18	224·78	...	...	...	...

Venus' Annual Equation. (P. 96 of Text.)

	+	+	−	−
	Degrees.			
0	0·0	180·0	180·0	360·0
1	2·4	179·6	180 4	357·6
2	4·7	179·2	180 8	355·3
3	7·1	178·8	181·2	352·9
4	9·5	178·5	181·5	350·5
5	11·9	178·1	181·9	348·1
6	14·3	177·7	182·3	345·7
7	16·7	177·3	182·7	343·3
8	19·1	176·9	183·1	340·9
9	21·4	176·6	183·4	338·6
10	23·9	176·2	183·8	336·1
11	26·3	175·8	184·2	333·7
12	28·7	175·3	184·7	331·3
13	31·1	174·9	185·1	328·9
14	33·5	174·5	185·5	326·5
15	35·9	174·1	185·9	324·1
16	38·4	173·7	186·3	321·6
17	40·8	173·2	186·8	319·2
18	43·2	172·8	187·2	316·8
19	45·7	172·4	187·6	314·3
20	48·2	171·9	188·1	311·8
21	50·6	171·4	188·6	309·4
22	53·1	170·9	189·1	306·9
23	55·6	170·4	189·6	304·4
24	58·2	169·9	190·1	301·8
25	60·7	169·4	190·6	299·3
26	63·3	168·9	191·1	296·7
27	65·9	168 3	191·7	294·1
28	68·4	167·7	192·3	291·6
29	71·1	167·1	192·9	288·9
30	73·8	166·4	193·6	286 2
31	76·4	165·8	194·2	283·6
32	79·1	165·1	194·9	280·9
33	81·9	164·3	195·7	278·1
34	84·7	163·5	196·5	275·3
35	87·5	162·7	197·3	272·5
36	90·4	161·9	198·1	269·6
37	93·4	161·0	199·0	266·6
38	96 4	159·9	200·1	263·6
39	99·6	158·8	201·2	260·4
40	102·8	157·7	202·3	257·2
41	106·2	156·2	203·8	253·8
42	109·8	154·6	205·4	250·2
43	113·6	152·8	207·2	246·4
44	117·9	150·6	209·4	242·1
45	122·9	147·8	212·2	237·1
46	129·7	142·8	217·2	230·3
46·38	135·0	...	225·0	...

Venus' Anomaly. (P. 96 of Text.)

	+	−
	Degrees.	
0·0	0·0	180·0
0·1	3·0	183·0
0·2	6·0	186·0
0·3	9·2	189·2
0·4	12·2	192·2
0·5	15·5	195·5
0·6	18·7	198·7
0·7	22·2	202·2
0·8	25·7	205·7
0·9	29·5	209·5
1·0	33·2	213·2
1·1	37·2	217·2
1·2	41·5	221·5
1·3	45·2	225·2
1·4	51·5	231·5
1·5	57·7	237·5
1·6	64·7	244·7
1·7	75·0	255·0
1·75	90·0	270·0

	+	−
1·7	105·0	285·0
1·6	115·3	295·3
1·5	122·3	302·2
1·4	128·5	308·5
1·3	134·8	314·8
1·2	138·5	318·5
1·1	142·8	322·8
1·0	146·8	326·8
0·9	150·5	330·5
0·8	154·3	334·3
0·7	157·8	337·8
0·6	161·3	341·3
0·5	164·5	344·5
0·4	167·8	347·8
0·3	170·8	350·8
0·2	174·0	354·0
0·1	177·0	357·0
0·0	180·0	360·0

TABLE IV—Saturn.

Data for calculating Latitude and geocentric Longitude of Saturn from B.C. 1 to A.D. 2000.

Saturn's mean motion for Centuries.

(For Centuries B.C. see p. 331.)

A.D.	Kaliyuga.	Mean Long. at commencement of Solar Year.	Longitude of apsis.	Longitude of node.
		Deg.	Deg.	Deg.
1 B.C.	3101 K.Y.	70·5378	236·6194	100·4714
100 A.D.	3201	212·4447	236·6197	100·4659
200	3301	354·3517	236·6200	100·4604
300	3401	136·2586	236·6203	100·4548
400	3501	278·1655	236·6207	100·4493
500	3601	60·0725	236·6210	100·4438
600	3701	201·9794	236·6213	100·4383
700	3801	343·8864	236·6216	100·4328
800	3901	125·7933	236·6220	100·4272
900	4001	267·7002	236·6223	100·4217
1000 A.D.	4101 K.Y.	49·6072	236·6226	100·4162
1100	4201	191·5141	236·6229	100·4107
1200	4301	333·4211	236·6233	100·4052
1300	4401	115·3280	236·6236	100·3997
1400	4501	257·2349	236·6239	100·3941
1500	4601	39·1419	236·6242	100·3886
1600	4701	181·0488	236·6246	100·3831
1700	4801	322·9558	236·6249	100·3776
1800	4901	104·8627	236·6252	100·3721
1900	5001	246·7696	236·6255	100·3665
2000	5101	28·6766	236·6259	100·3611

TABLE IV—Saturn—*cont.*

Saturn's mean motion for Odd Years. (Used at p. 97 of Text.)

Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs.	Deg.	Yrs	Deg.
1	12·22	11	134·41	21	256·60	31	18·79	41	140·98	51	263·17	61	25·36	71	147·55	81	269·74	91	31·93
2	24·44	12	146·63	22	268·82	32	31·01	42	153·20	52	275·39	62	37·58	72	159·77	82	281·96	92	44·15
3	36·66	13	158·85	23	281·04	33	43·23	43	165·42	53	287·61	63	49·80	73	171·99	83	294·18	93	56·37
4	48·88	14	171·07	24	293·26	34	55·45	44	177·64	54	299·83	64	62·02	74	184·21	84	306·40	94	68·59
5	61·09	15	183·29	25	305·48	35	67·67	45	189·86	55	312·05	65	74·24	75	196·43	85	318·62	95	80·81
6	73·31	16	195·50	26	317·70	36	79·89	46	202·08	56	324·27	66	86·46	76	208·65	86	330·84	96	93·03
7	85·53	17	207·72	27	329·91	37	92·10	47	214·30	57	336·49	67	98·68	77	220·87	87	343·06	97	105·25
8	97·75	18	219·94	28	342·13	38	104·32	48	226·51	58	348·71	68	110·90	78	233·09	88	355·28	98	117·47
9	109·97	19	232·16	29	354·35	39	116 54	49	238·73	59	0·92	69	123·12	79	245·31	89	7·50	99	129·69
10	122·19	20	244·38	30	6·57	40	128·76	50	250·95	60	13·14	70	135·33	80	257·52	90	19·72	100	141·91

Saturn's mean motion for Days.

Days.	0	1	2	3	4	5	6	7	8	9
	Degrees.									
0	...	0·03	0·07	0·10	0·13	0·17	0·20	0·23	0·27	0·30
1	0·33	0·37	0·40	0·43	0·47	0·50	0·53	0·57	0·60	0·64
2	0·67	0·70	0·74	0·77	0·80	0·84	0·87	0·90	0·94	0·97
3	1·00	1·04	1·07	1·10	1·14	1·17	1·20	1·24	1·27	1·30
4	1·34	1·37	1·40	1·44	1·47	1·51	1·54	1·57	1·61	1·64
5	1·67	1·71	1·74	1·77	1·81	1·84	1·87	1·91	1·94	1·97
6	2·01	2·04	2·07	2·11	2·14	2·17	2·21	2·24	2·27	2·31
7	2·34	2·38	2·41	2·44	2·48	2·51	2·54	2·58	2·61	2·64
8	2·68	2·71	2·74	2·78	2·81	2·84	2·88	2·91	2·94	2·98
9	3·01	3·04	3·08	3·11	3·14	3·18	3·21	3·25	3·28	3·31
10	3·35	3·38	3·41	3·45	3·48	3·51	3·55	3·58	3·61	3·65
11	3·68	3·71	3·75	3·78	3·81	3·85	3·88	3·91	3·95	3·98
12	4·01	4·05	4·08	4·12	4·15	4·18	4·22	4·25	4·28	4·32
13	4·35	4·38	4·42	4·45	4·48	4·52	4·55	4·58	4·62	4·65
14	4·68	4·72	4·75	4·78	4·82	4·85	4·88	4·92	4·95	4·99
15	5·02	5·05	5·09	5·12	5·15	5·19	5·22	5·25	5·29	5·32
16	5·35	5·39	5·42	5·45	5·49	5·52	5·55	5·59	5·62	5·65
17	5·69	5·72	5·75	5·79	5·82	5·85	5·89	5·92	5·96	5·99
18	6·02	6·06	6·09	6·12	6·16	6·19	6·22	3·26	6·29	6·32

Days.	0	1	2	3	4	5	6	7	8	9
	Degrees.									
19	6·36	6·39	6·42	6·46	6·49	6·52	6·56	6·59	6·62	6·66
20	6·69	6·72	6·76	6·79	6·83	6·86	6·89	6·93	6·96	6·99
21	7·03	7·06	7·09	7·13	7·16	7·19	7·23	7·26	7·29	7·33
22	7·36	7·39	7·43	7·46	7·49	7·53	7·56	7·59	7·63	7·66
23	7·70	7·73	7·76	7·80	7·83	7·86	7·90	7·93	7·96	8·00
24	8·03	8·06	8·10	8·13	8·16	8·20	8·23	8·26	8·29	8·33
25	8·36	8·40	8·43	8·46	8·50	8·53	8·57	8·60	8·63	8·67
26	8·70	8·73	8·77	8·80	8·83	8·87	8·90	8·93	8·97	9·00
27	9·03	9·07	9·10	9·13	9·17	9·20	9·23	9·27	9·30	9·33
28	9·37	9·40	9·43	9·47	9·50	9·54	9·57	9·60	9·64	9·67
29	9·70	9·74	9·77	9·80	9·84	9·87	9·90	9·94	9·97	10·00
30	10·04	10·07	10·10	10·14	10·17	10·20	10·24	10·27	10·31	10·34
31	10·37	10·41	10·44	10·47	10·51	10·54	10·57	10·61	10·64	10·67
32	10·71	10·74	10·77	10·81	10·84	10·87	10·91	10·94	10·97	11·01
33	11·04	11·07	11·11	11·14	11·18	11·21	11·24	11·28	11·31	11·34
34	11·38	11·41	11·44	11·48	11·51	11·54	11·58	11·61	11·64	11·68
35	11·71	11·74	11·78	11·81	11·84	11·88	11·91	11·94	11·98	12·01
36	12·05	12·08	12·11	12·15	12·18	12·21	...	...	...	...

Saturn's Annual Equation. (Used at p. 97 of Text.)

+	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9
	Degrees.									
0	0·0	1·0	2·0	3·1	4·1	5·1	6·1	7·1	8·2	9·2
1	10·2	11·2	12·2	13·3	14·4	15·4	16·4	17·5	18·5	19·6
2	20·6	21·7	22·7	23·8	24·9	26·0	27·1	28·2	29·2	30·4
3	31·5	32·6	33·7	34·9	36·1	37·2	38·4	39·6	40·8	42·0
4	43·2	44·5	45·9	47·1	48·5	49·7	51·1	52·5	54·0	55·5
5	57·0	58·5	60·1	61·7	63·5	65·4	67·2	69·2	71·5	73·7
6	76·2	79·3	82·7	87·5	97·5	...	...	...	...	...

−	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9
	Degrees.									
0	180·0	180·8	181·7	182.5	183·3	184·1	184·9	185·8	186·6	187·4
1	188·3	189·1	189·9	190·8	191·6	192·4	193·3	194·1	194·9	195·8
2	196·7	197·5	198·4	199·4	200·8	201·1	201·9	202·8	203·8	204·7
3	205·6	206·5	207·5	208·4	209·4	210·3	211·3	212·3	213·3	214·4
4	215·4	216·5	217·5	218·7	219·8	221·0	222·1	223·4	224·6	225·9
5	227·3	228·5	229·8	231·3	233·0	234·6	236·3	238·3	240·0	242·3
6	244·3	247·3	250·8	255·0	262·5	..	...	...	...	...

Maximum Equation 6·3767° for Anomaly of 97·50°.

+	·9	·8	·7	·6	·5	·4	·3	·2	·1	·0
	Degrees.									
6	..	...	...	..	...	97·5	105·0	109·2	112·7	115·7
5	117·7	120·0	121·7	123·7	125·4	127·0	128·7	130·2	131·5	132·7
4	134·1	135·4	136·6	137·9	139·0	140·2	141·3	142·5	143·5	144·6
3	145·6	146·7	147·7	148·7	149·7	150·6	151·6	152·5	153·5	154·4
2	155·3	156·2	157·2	158·1	158·9	159·2	160·7	161·6	162·5	163·3
1	164·2	165·1	165·9	166·7	167·6	168·4	169·2	170·1	170·9	171·7
0	172·6	173·4	174·2	175·1	175·9	176·7	177·5	178·3	179·2	180·0

Maximum Equation 6·3767° for Anomaly of 262·50°.

−	·9	·8	·7	·6	·5	·4	·3	·2	·1	·0
	Degrees.									
6	...	..	.	...	..	262·5	272·5	277·3	280·8	283·8
5	286·3	288·5	290·8	292·8	294·6	296·5	298·3	299·9	301·5	303·0
4	304·5	306·0	307·5	308·9	310·3	311·5	312·9	314·1	315·5	316·8
3	318·0	319·2	320·4	321·6	322·8	323·9	325·1	326·3	327·4	328·5
2	329·6	330·8	331·8	332·9	334·0	335·1	336·2	337·3	338·3	339·4
1	340·4	341·5	342·5	343·6	344·6	345·6	346·7	347·8	348·8	349·8
0	350·8	351·8	352·9	353·9	354·9	355·9	356·9	358·0	359·0	360·0

Saturn's Anomaly. (Used at p. 97 of Text.)

+	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9
	Degrees.									
0	0·0	0·7	1·5	2·2	2·9	3·7	4·4	5·2	5·9	6·7
1	7·4	8·1	8·9	9·6	10·4	11·2	11·9	12·7	13·4	14·2
2	14·9	15·7	16·5	17·2	18·1	18·8	19·6	20·4	21·2	22·0
3	22·8	23·7	24·5	25·3	26·1	26·9	27·8	28·7	29·5	30·3
4	31·2	32·1	33·0	33·9	34·8	35·7	36·7	37·6	38·5	39·5
5	40·5	41·5	42·5	43·5	44.6	45·6	46·7	47·9	49·0	50·1
6	51·4	52·5	53·9	55·1	56·5	57·9	59·2	60·9	62·5	64·1
7	66·0	67·7	70·0	72·2	75·0	78·2	83·0	90·0	...	...

Maximum Equation 7·6586° for Anomaly of 90·00°.

+	·9	·8	·7	·6	·5	·4	·3	·2	·1	·0
	Degrees.									
7	...	...	90·0	97·0	101·8	105·0	107·8	110·0	112·3	114·0
6	115·9	117·5	119·1	120·8	122·1	123·5	124·9	126·1	127·5	128·6
5	129·9	131·0	132·1	133·3	134·4	135·4	136·5	137·5	138·5	139·5
4	140·5	141·5	142·4	143·3	144·3	145·2	146·1	147·0	147·9	148·8
3	149·7	150·5	151·3	152·2	153·1	153·9	154·7	155·5	156·3	157·2
2	158·0	158·8	159·6	160·4	161·2	161·9	162·8	163·5	164·3	165·1
1	165·8	166·6	167·3	168·1	168·8	169·6	170·4	171·1	171·9	172·6
0	173·3	174·1	174·8	175·6	176·3	177·1	177·8	178·5	179·3	180·0

Maximum Equation 7·6586° for Anomaly of 270·00°.

−	·9	·8	·7	·6	·5	·4	·3	·2	·1	·0
	Degrees.									
7			270·0	277·0	281·8	285·0	287·8	290·0	292·3	294·0
6	295·9	297·5	299·1	300·8	302·1	303·5	304·9	306·1	307·5	308·6
5	309·9	311·0	312·1	313·3	314·4	315·4	316·5	317·5	318·5	319·5
4	320·5	321·5	322·4	323·3	324·3	325·2	326·1	327·0	327·9	328·8
3	329·7	330·5	331·3	332·2	333·1	333·9	334·7	335·5	336·3	337·2
2	338·0	338·8	339·6	340·4	341·2	341·9	342·8	343·5	344·3	345·1
1	345·8	346·6	347·3	348·1	348·8	349·6	350·4	351·1	351·9	352·6
0	353·3	354·1	354·8	355·6	356·3	357·1	357·8	358·5	359·3	360·0

TABLE IV—Mars eye-table.

Mean longitude of Mars, corresponding to Mars' actual place for every tenth day in a year and vice versa—vide paragraph 320 of "Indian Chronology" (2nd edition) or Volume I of Indian Ephemeris, A.D. 700 to A.D 2000.

Actual geocentric place.	Mean longitude.																		Actual geocentric place.	Mean longitude.																	
	0 dy.	10 dys.	20 dys.	30 dys.	40 dys.	50 dys.	60 dys.	70 dys.	80 dys.	90 dys.	100 dys.	110 dys.	120 dys.	130 dys.	140 dys.	150 dys.	160 dys.	170 dys.	180 dys.		190 dys.	200 dys.	210 dys.	220 dys.	230 dys.	240 dys.	250 dys.	260 dys.	270 dys.	280 dys.	290 dys.	300 dys.	310 dys.	320 dys.	330 dys.	340 dys.	350 dys.	360 dys.
	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.		Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
0°	354	347	341	335	330	325	321	317	314	314	314	315	320	323	328	331	339	344	350	0°	357	3	9	14	19	24	27	30	31	31	30	27	23	18	15	8	2	356
10°	9	2	356	350	343	338	334	329	325	324	322	322	325	327	331	336	342	347	353	10°	359	5	11	17	22	28	32	35	39	40	41	39	31	32	29	23	18	12
20°	23	17	12	5	358	352	347	342	338	335	332	331	332	333	335	339	344	350	356	20°	2	8	14	19	25	32	37	41	44	47	50	50	42	46	43	38	33	26
30°	39	33	26	21	14	9	2	356	351	347	344	341	340	340	342	344	349	353	359	30°	5	11	17	23	29	35	41	46	50	54	58	59	60	58	57	52	48	42
40°	49	48	43	36	30	24	18	11	5	1	357	351	351	349	349	350	354	358	3	40°	8	15	20	26	32	39	45	50	55	60	65	68	69	69	69	67	63	58
50°	70	65	59	53	47	42	35	28	21	16	11	6	3	0	358	358	1	3	8	50°	12	18	23	29	35	42	48	54	60	66	71	75	78	79	80	79	77	73
60°	86	80	75	70	63	57	52	43	38	31	26	20	16	11	10	7	9	10	13	60°	17	22	27	33	39	46	52	58	65	70	77	82	86	89	91	91	90	87
70°	100	98	92	87	80	75	69	61	55	50	41	37	33	26	22	19	18	18	21	70°	23	28	32	37	43	50	56	62	69	74	82	88	93	97	101	103	103	101
80°	114	112	108	104	98	92	86	79	72	66	58	53	47	42	37	33	31	29	29	80°	31	34	38	42	47	54	60	66	73	79	87	93	99	104	109	112	114	114
90°	128	126	122	120	115	111	104	98	91	85	77	69	64	57	53	48	45	41	40	90°	40	42	44	48	52	58	65	70	79	84	92	98	105	110	117	121	124	126
100°	136	139	138	135	132	128	124	116	109	104	95	89	82	75	70	64	59	55	52	100°	51	52	53	55	60	64	70	75	82	89	98	103	110	117	124	129	133	137
110°	146	148	150	150	147	145	140	134	128	122	115	108	102	94	89	81	77	71	68	110°	64	63	63	64	66	71	75	81	87	93	101	108	115	122	130	136	141	145
120°	155	158	161	162	161	161	157	152	147	141	133	127	120	113	106	99	94	87	84	120°	80	77	75	74	75	79	83	87	92	99	107	113	120	128	135	143	148	153
130°	162	167	171	172	174	174	171	169	164	159	153	146	140	133	125	116	112	106	101	130°	96	92	89	87	86	88	91	94	99	104	112	119	127	133	141	148	154	160
140°	169	174	179	182	185	187	186	183	180	177	172	165	159	152	145	137	131	122	119	140°	112	109	104	100	99	99	101	103	107	111	118	124	131	139	146	153	160	166
150°	175	181	186	190	194	197	197	197	195	193	188	183	178	171	164	157	150	143	137	150°	129	125	120	116	113	111	112	112	117	119	125	131	137	144	152	159	166	172
160°	180	186	192	197	202	206	208	209	207	207	204	200	196	189	183	176	170	163	156	160°	149	144	137	132	128	125	125	123	124	128	132	137	143	149	157	163	170	177
170°	185	191	197	203	208	214	217	219	220	220	218	214	211	205	201	194	187	182	175	170°	168	162	155	149	143	141	138	135	135	136	140	144	149	155	162	168	175	182
180°	189	195	202	208	213	220	224	227	230	231	231	229	226	222	211	212	207	200	193	180°	186	180	173	167	160	156	153	149	148	147	149	152	156	160	167	173	180	186
190°	193	199	205	211	217	224	229	233	236	241	241	241	240	237	233	227	223	219	211	190°	205	199	191	186	178	174	168	163	160	159	159	161	163	167	173	178	184	190
200°	196	202	209	216	222	229	234	239	244	248	249	251	251	250	247	242	238	232	228	200°	221	216	209	202	195	190	184	180	175	171	170	170	172	174	179	184	189	195
210°	200	207	213	219	225	232	238	244	248	254	257	260	260	261	259	256	253	248	243	210°	239	233	227	219	213	207	201	194	190	186	182	181	181	183	186	190	194	199
220°	206	211	217	223	229	236	242	247	253	259	263	267	270	271	269	268	267	262	259	220°	253	248	243	236	230	224	217	211	205	199	196	193	192	191	195	195	200	204
230°	211	216	221	226	232	239	245	250	256	263	267	272	276	278	280	279	278	276	273	230°	269	263	257	251	246	239	234	227	222	215	211	207	204	202	202	203	205	210
240°	217	220	225	230	235	242	248	254	259	265	271	276	281	285	287	288	289	286	285	240°	281	278	272	266	260	257	249	243	237	231	226	221	217	214	212	212	213	215
250°	223	226	230	234	239	245	251	256	262	269	274	280	285	290	293	295	297	297	296	250°	294	291	286	282	275	270	267	258	252	245	241	236	230	226	224	222	217	222
260°	231	233	235	238	243	249	254	259	265	272	277	283	289	294	298	301	305	306	306	260°	305	302	299	295	286	284	279	272	267	261	256	250	244	240	237	233	231	231
270°	240	240	241	244	247	252	257	262	268	274	280	286	293	297	302	306	310	313	315	270°	315	314	311	308	303	299	293	287	281	277	271	265	259	253	249	245	242	240
280°	250	249	249	250	252	256	261	265	270	277	283	288	295	300	306	309	315	319	321	280°	323	324	322	319	315	312	307	301	306	289	285	279	273	267	263	258	254	251
290°	260	258	257	257	258	261	265	269	274	280	285	291	298	303	309	314	319	323	327	290°	330	332	331	330	327	323	320	315	309	304	298	293	287	281	276	271	266	262
300°	272	268	267	265	265	267	270	273	277	283	288	293	300	306	311	317	323	327	332	300°	335	339	340	339	338	336	332	328	322	318	312	306	302	295	290	285	279	274
310°	284	280	276	272	273	274	275	278	281	286	291	296	302	308	314	319	326	331	336	310°	340	344	346	348	347	347	344	340	336	331	326	320	315	308	304	298	292	287
320°	297	292	288	284	282	281	282	283	286	290	294	299	305	311	316	322	328	334	340	320°	344	349	353	355	356	357	355	353	348	342	340	334	328	322	317	312	306	300
330°	311	305	299	295	291	291	289	289	291	295	298	302	308	313	319	324	331	338	343	330°	348	352	358	1	3	5	4	3	0	356	353	348	342	337	331	325	319	314
340°	324	317	313	308	304	301	298	297	298	300	303	306	311	316	321	327	333	339	346	340°	351	357	2	6	9	12	13	13	12	8	6	1	356	350	346	339	333	328
350°	339	331	327	322	316	313	309	307	305	306	307	310	315	319	324	330	336	342	348	350°	353	359	4	9	14	18	21	23	22	20	19	14	10	4	0	354	348	341

TABLE IV—Mercury eye-table.

Showing for every tenth day in the Indian Solar year

(1) in ordinary type, the mean longitude of Mercury for that day (indicated by M.L.) attained in a particular year—shown in Column 1. See explanation in paragraph 321, page 132 of the Text.

(2) in heavy type, the corresponding actual geocentric place (indicated by G.P.) extracted from Table V-B.

N.B.—When using this table, find first of all, under the appropriate day of the solar year, the place where the minimum mean longitude for that column, 1, 2, 3, 4, 5, etc., as the case may be, is entered in ordinary type; from this point any other desired longitude may be traced consecutively. Supposing it is required to know the actual geocentric place of Mercury corresponding to mean longitude 13° on the 90th (completed) day of any solar year. Looking down the column "90 days" it will be found that the initial mean longitude 5° is entered in line with 357° mean longitude in column 3. Running the eye along the column "90 days", the mean longitude 13° is the next entry for which the corresponding geocentric place is 71° (11° in Mithuna).

Year		0 dy.	10 dys.	20 dys.	30 dys.	40 dys.	50 dys.	60 dys.	70 dys.	80 dys.	90 dys.	100 dys.	110 dys.	120 dys.	130 dys.	140 dys.	150 dys.	160 dys.	170 dys.	180 dys.	190 dys.	200 dys.	210 dys.	220 dys.	230 dys.	240 dys.	250 dys.	260 dys.
		Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
A.D.	M.L.	200	241	282	323	4	45	86	126	167	208	249	290	331	12	53	94	135	176	217	258	298	339	20	61	102	143	184
1834	G.P.	**342**	**343**	**355**	**10**	**28**	**47**	**66**	**84**	**100**	**112**	**116**	**111**	**105**	**109**	**120**	**136**	**153**	**170**	**188**	**204**	**217**	**225**	**224**	**216**	**214**	**221**	**235**
	M.L.	208	249	290	331	12	53	94	134	175	216	257	298	339	20	61	102	143	184	225	266	306	347	28	69	120	151	192
1821	G.P.	**338**	**343**	**355**	**12**	**30**	**49**	**68**	**86**	**101**	**111**	**113**	**106**	**103**	**109**	**121**	**138**	**155**	**173**	**190**	**205**	**218**	**224**	**219**	**211**	**213**	**223**	**237**
	M.L.	216	257	298	339	20	61	102	142	183	224	265	306	347	28	69	110	151	192	233	274	314	355	36	77	118	159	200
1808	G.P.	**336**	**343**	**356**	**14**	**32**	**51**	**70**	**87**	**101**	**110**	**109**	**102**	**101**	**109**	**123**	**139**	**157**	**175**	**192**	**207**	**217**	**221**	**215**	**209**	**212**	**224**	**239**
	M.L.	224	265	306	347	28	69	110	150	191	232	273	314	355	36	77	118	159	200	241	282	322	3	44	85	126	167	208
1795	G.P.	**334**	**343**	**358**	**16**	**34**	**53**	**72**	**89**	**102**	**108**	**104**	**98**	**99**	**110**	**124**	**141**	**159**	**177**	**194**	**208**	**217**	**217**	**210**	**206**	**213**	**225**	**240**
	M.L.	231	272	313	354	35	76	117	157	198	239	280	321	2	43	84	125	166	207	248	289	329	10	51	92	133	174	215
1828	G.P.	**332**	**344**	**359**	**17**	**36**	**55**	**74**	**90**	**102**	**106**	**100**	**95**	**99**	**111**	**126**	**143**	**161**	**180**	**195**	**208**	**216**	**214**	**207**	**205**	**213**	**226**	**242**
	M.L.	239	280	321	2	43	84	125	165	206	247	288	329	10	51	92	133	174	215	256	297	337	18	59	100	141	182	223
1815	G.P.	**333**	**345**	**1**	**20**	**38**	**57**	**75**	**90**	**101**	**102**	**95**	**92**	**99**	**111**	**128**	**145**	**163**	**181**	**196**	**209**	**214**	**210**	**203**	**204**	**213**	**228**	**244**
	M.L.	247	288	329	10	51	92	133	173	214	255	296	337	18	59	100	141	182	223	264	305	345	26	67	108	149	190	231
1802	G.P.	**333**	**346**	**3**	**22**	**41**	**59**	**77**	**91**	**99**	**98**	**91**	**90**	**99**	**113**	**130**	**147**	**165**	**182**	**197**	**208**	**212**	**206**	**200**	**203**	**214**	**229**	**246**
	M.L.	251	295	336	17	58	99	140	180	221	262	303	344	25	66	107	148	189	230	271	312	352	33	74	115	156	197	238
1835	G.P	**333**	**348**	**5**	**24**	**43**	**61**	**78**	**91**	**98**	**94**	**88**	**89**	**100**	**114**	**132**	**149**	**167**	**184**	**198**	**208**	**209**	**202**	**198**	**203**	**215**	**231**	**248**
	M.L.	263	304	345	26	67	108	149	189	230	271	312	353	34	75	116	157	198	239	280	321	1	42	83	124	165	206	247
1822	G P.	**339**	**349**	**7**	**26**	**45**	**63**	**79**	**91**	**95**	**89**	**84**	**89**	**101**	**116**	**133**	**151**	**169**	**185**	**199**	**207**	**206**	**198**	**196**	**204**	**217**	**233**	**250**
	M.L.	271	312	353	34	75	116	157	197	238	279	320	1	42	83	124	165	206	247	288	329	9	50	91	132	173	214	255
1809	G.P.	**335**	**351**	**9**	**28**	**48**	**65**	**80**	**90**	**92**	**85**	**81**	**88**	**102**	**118**	**136**	**154**	**171**	**187**	**199**	**205**	**201**	**194**	**195**	**204**	**218**	**235**	**252**
	M.L.	279	320	1	42	83	124	165	205	246	287	328	9	50	91	132	173	214	255	296	337	17	58	99	140	181	222	263
1796	G.P.	**336**	**353**	**11**	**30**	**49**	**66**	**80**	**89**	**87**	**80**	**80**	**89**	**103**	**120**	**138**	**156**	**173**	**188**	**199**	**203**	**197**	**191**	**194**	**205**	**220**	**237**	**254**
	M.L.	286	327	8	49	90	131	172	212	253	294	335	16	57	98	139	180	221	262	303	344	24	65	106	147	188	229	270
1829	G.P.	**337**	**355**	**13**	**32**	**51**	**67**	**81**	**87**	**83**	**77**	**79**	**89**	**104**	**122**	**140**	**158**	**174**	**189**	**199**	**200**	**193**	**189**	**195**	**206**	**221**	**239**	**256**
	M.L.	294	335	16	57	98	139	180	220	261	302	343	24	65	106	147	188	229	270	311	352	32	73	114	155	196	237	278
1816	G.P.	**339**	**357**	**15**	**34**	**53**	**69**	**80**	**84**	**78**	**73**	**78**	**90**	**106**	**124**	**142**	**160**	**176**	**190**	**198**	**196**	**189**	**187**	**195**	**208**	**224**	**241**	**258**
	M.L.	302	343	24	65	106	147	188	228	269	310	351	32	73	114	155	196	237	278	319	0	40	81	122	163	204	245	286
1803	G.P.	**341**	**359**	**18**	**36**	**54**	**69**	**79**	**80**	**74**	**71**	**79**	**92**	**108**	**125**	**144**	**161**	**177**	**190**	**196**	**193**	**185**	**186**	**195**	**209**	**226**	**243**	**260**
	M.L.	309	350	31	72	113	154	195	235	276	317	358	39	80	121	162	203	244	285	326	7	47	88	129	170	211	252	293
1836	G.P.	**343**	**1**	**20**	**38**	**56**	**70**	**78**	**77**	**70**	**69**	**79**	**93**	**110**	**126**	**146**	**163**	**179**	**190**	**194**	**189**	**182**	**185**	**196**	**211**	**227**	**245**	**262**
	M.L.	317	358	39	80	121	162	203	243	284	325	6	47	88	129	170	211	252	293	334	15	55	96	137	178	219	260	301
1823	G.P.	**345**	**3**	**22**	**40**	**57**	**70**	**76**	**72**	**66**	**68**	**79**	**94**	**112**	**130**	**148**	**165**	**180**	**189**	**191**	**184**	**180**	**185**	**197**	**213**	**229**	**247**	**264**
	M.L.	325	6	47	88	129	170	211	251	292	333	14	55	96	137	178	219	260	301	342	23	63	104	145	186	227	268	309
1810	G.P.	**347**	**5**	**24**	**42**	**58**	**70**	**73**	**67**	**62**	**68**	**80**	**96**	**114**	**132**	**150**	**166**	**180**	**188**	**187**	**180**	**178**	**186**	**198**	**215**	**231**	**244**	**266**
	M.L.	334	15	56	97	138	179	220	260	301	342	23	64	105	146	187	228	269	310	351	32	72	113	154	195	236	277	318
1797	G.P.	**349**	**8**	**26**	**44**	**59**	**69**	**70**	**63**	**60**	**68**	**81**	**98**	**116**	**134**	**152**	**167**	**181**	**187**	**185**	**176**	**177**	**186**	**200**	**216**	**234**	**251**	**268**
	M.L.	341	22	63	104	145	186	227	267	308	349	30	71	112	153	194	235	276	317	358	39	79	120	161	202	243	284	325
1830	G.P.	**351**	**10**	**28**	**45**	**59**	**67**	**66**	**59**	**59**	**69**	**83**	**100**	**118**	**136**	**153**	**169**	**181**	**184**	**179**	**173**	**176**	**187**	**202**	**218**	**236**	**253**	**269**
	M.L.	349	30	71	112	153	194	235	275	316	357	38	79	120	161	202	243	284	325	6	47	87	128	169	210	251	292	333
1817	G.P.	**353**	**12**	**30**	**47**	**60**	**65**	**61**	**55**	**58**	**89**	**84**	**102**	**100**	**138**	**155**	**170**	**180**	**182**	**175**	**171**	**176**	**188**	**203**	**220**	**238**	**255**	**270**
	M.L.	357	38	79	120	161	202	243	283	324	5	46	87	128	169	210	251	292	333	14	55	95	136	177	218	259	300	341
1804	G.P.	**355**	**14**	**32**	**47**	**59**	**62**	**56**	**52**	**57**	**70**	**86**	**104**	**122**	**141**	**157**	**171**	**179**	**178**	**171**	**168**	**176**	**189**	**205**	**222**	**240**	**256**	**271**

Year		270 dys.	280 dys.	290 dys.	300 dys.	310 dys.	320 dys.	330 dys.	340 dys.	350 dys.	360 dys.
		Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
A.D.	M.L.	225	266	307	348	29	70	110	151	192	233
1835	G.P.	**251**	**269**	**287**	**304**	**319**	**330**	**333**	**328**	**322**	**327**
	M.L.	233	274	315	356	37	78	118	159	200	241
1822	G.P.	**253**	**271**	**289**	**305**	**320**	**329**	**330**	**323**	**320**	**327**
	M.L.	241	282	323	4	45	86	126	167	208	249
1809	G.P.	**256**	**273**	**291**	**307**	**320**	**328**	**326**	**319**	**318**	**327**
	M.L.	249	290	331	12	53	94	134	175	216	257
1796	G.P.	**258**	**275**	**293**	**308**	**320**	**326**	**321**	**315**	**317**	**328**
	M.L.	256	297	338	19	60	101	144	182	223	264
1829	G.P.	**259**	**277**	**294**	**309**	**320**	**323**	**317**	**312**	**317**	**329**
	M.L.	264	305	346	27	68	109	149	190	231	272
1816	G.P.	**262**	**279**	**296**	**310**	**319**	**320**	**313**	**310**	**317**	**330**
	M.L.	272	313	354	35	76	117	157	198	239	280
1803	G.P.	**264**	**281**	**297**	**310**	**318**	**316**	**309**	**308**	**318**	**332**
	M.L.	279	320	1	42	83	124	164	205	246	287
1836	G.P.	**265**	**283**	**298**	**311**	**316**	**312**	**306**	**307**	**318**	**333**
	M.L.	288	329	10	51	92	133	173	214	255	296
1823	G.P.	**268**	**284**	**299**	**310**	**313**	**307**	**302**	**307**	**319**	**335**
	M.L.	296	337	18	59	100	141	181	222	263	304
1810	G.P.	**270**	**286**	**300**	**309**	**310**	**303**	**300**	**307**	**320**	**337**
	M.L.	304	345	26	67	108	149	189	230	271	312
1797	G.P.	**272**	**288**	**301**	**308**	**305**	**298**	**298**	**307**	**322**	**339**
	M.L.	311	352	33	74	115	156	196	237	278	319
1830	G.P.	**273**	**289**	**301**	**306**	**301**	**295**	**298**	**308**	**323**	**341**
	M.L.	319	0	41	82	123	164	204	245	286	327
1817	G.P.	**275**	**290**	**301**	**303**	**297**	**292**	**297**	**309**	**325**	**343**
	M.L.	327	8	49	90	131	172	212	253	294	335
1804	G.P.	**277**	**291**	**300**	**300**	**293**	**290**	**297**	**310**	**327**	**345**
	M.L.	334	15	56	97	138	179	219	260	301	342
1837	G.P.	**278**	**291**	**298**	**296**	**289**	**288**	**298**	**311**	**329**	**347**
	M.L.	342	23	64	105	146	187	227	268	309	350
1824	G.P.	**279**	**291**	**296**	**292**	**285**	**288**	**298**	**313**	**331**	**349**
	M.L.	350	31	72	113	154	195	235	276	317	358
1811	G.P.	**281**	**291**	**294**	**287**	**282**	**287**	**299**	**315**	**333**	**351**
	M.L.	359	40	81	122	163	204	244	285	326	7
1798	G.P.	**281**	**290**	**290**	**283**	**280**	**287**	**301**	**317**	**335**	**354**
	M.L.	6	47	88	129	170	211	251	292	333	14
1831	G.P.	**282**	**289**	**287**	**279**	**279**	**288**	**302**	**319**	**337**	**356**
	M.L.	14	55	96	137	178	219	259	300	341	22
1818	G.P.	**282**	**286**	**282**	**276**	**278**	**288**	**303**	**321**	**339**	**358**
	M.L.	22	63	104	145	186	227	267	308	349	30
1805	G.P.	**281**	**284**	**278**	**273**	**277**	**290**	**305**	**323**	**341**	**360**

TABLE IV—Mercury eye table—*cont.*

Showing for every tenth day in the Indian Solar year, etc.—*cont.*

Year A.D.		0 dy.	10 dys.	20 dys.	30 dys	40 dys.	50 dys.	60 dys.	70 dys.	80 dys.	90 dys.	100 dys.	110 dys.	120 dys.	130 dys.	140 dys.	150 dys.	160 dys.	170 dys.	180 dys.	190 dys.	200 dys.	210 dys.	220 dys.	230 dys.	240 dys.	250 dys.	260 dys.
	M.L.	5	46	87	128	169	210	251	291	332	13	54	95	136	177	218	259	300	341	22	63	103	144	185	226	267	308	349
1791	G.P.	357	15	33	48	58	58	51	49	57	71	88	106	125	142	158	171	177	174	167	167	177	191	207	225	242	258	272
	M.L.	12	53	94	135	176	217	258	298	339	20	61	102	143	184	225	266	307	348	29	70	110	151	192	233	274	315	356
1824	G.P.	359	18	35	49	56	55	48	48	58	73	90	108	126	144	160	171	175	170	164	167	178	192	209	226	244	259	272
	M.L.	20	61	102	143	184	225	266	306	347	28	69	110	151	192	233	274	315	356	37	78	118	159	200	241	282	323	4
1811	G.P.	1	20	36	48	54	50	44	47	58	74	92	110	128	146	161	171	172	166	161	167	179	194	211	229	245	261	272
	M.L.	28	69	110	151	192	233	274	314	355	36	77	118	159	200	241	282	323	364	45	86	126	167	208	249	290	331	12
1798	G.P.	4	21	37	48	51	45	41	46	59	76	94	112	131	147	161	169	169	162	154	167	180	196	213	231	247	262	272
	M.L.	35	76	117	158	199	240	281	321	2	43	84	125	166	207	248	289	330	11	52	93	133	174	215	256	297	338	19
1831	G.P.	6	23	38	47	48	41	39	46	61	78	96	114	132	149	162	168	165	158	153	167	182	198	215	232	249	263	271
	M.L.	44	85	126	167	208	249	290	330	11	52	93	134	175	216	257	298	339	20	61	102	142	183	224	265	306	347	28
1818	G.P.	7	24	38	46	43	36	37	47	62	80	98	116	134	150	162	166	161	154	158	168	183	200	217	234	250	263	270
	M.L.	52	93	134	175	216	257	298	338	19	60	101	142	183	224	265	306	347	28	69	110	150	191	232	273	314	355	36
1805	G.P.	9	26	38	43	38	33	36	48	64	82	100	119	136	151	161	163	156	152	157	170	185	202	219	236	251	263	269
	M.L.	60	101	142	183	224	265	306	346	27	68	99	150	191	232	273	314	355	36	77	118	158	199	240	281	322	3	44
1792	G.P.	11	27	37	40	33	30	36	49	66	84	102	121	138	152	159	159	152	150	157	171	187	204	222	238	253	263	265
	M.L.	67	108	149	190	231	272	313	353	34	75	116	157	198	239	280	321	2	43	84	125	165	206	247	288	329	10	51
1825	G.P.	12	27	37	36	29	28	36	50	68	86	104	122	139	152	158	156	148	149	158	172	189	206	223	240	253	262	262
	M.L.	75	116	157	198	239	280	321	1	42	83	124	165	206	247	288	329	10	51	92	133	173	214	255	296	337	18	59
1812	G.P.	14	27	34	32	25	26	36	52	69	88	106	124	140	152	156	151	145	148	159	174	191	208	225	241	254	261	259
	M.L.	83	124	165	206	247	288	329	9	50	91	132	173	214	255	296	337	18	59	100	141	181	222	263	304	345	26	67
1799	G.P.	15	27	32	26	21	25	37	53	71	90	109	126	141	151	153	146	142	148	160	176	193	210	227	242	254	259	254
	M.L.	90	131	172	213	254	295	336	16	57	98	139	180	221	262	303	344	25	66	107	148	188	229	270	311	352	33	74
1832	G.P.	16	27	29	22	19	25	38	55	73	92	110	127	142	150	150	142	140	148	161	177	195	212	228	243	254	256	250
	M.L.	98	139	180	221	262	303	344	24	65	106	147	188	229	270	311	352	33	74	115	156	196	237	278	319	0	41	82
1819	G.P.	17	26	25	18	17	25	40	57	76	94	112	129	142	148	146	138	137	148	163	179	197	214	230	244	253	253	246
	M.L.	106	147	188	229	270	311	352	32	73	114	155	196	237	278	319	0	41	82	123	164	205	246	287	328	8	49	90
1806	G.P.	17	24	20	14	15	26	41	59	78	96	114	130	142	146	141	135	138	149	164	181	199	216	232	245	252	250	242
	M.L.	115	156	197	238	279	320	1	41	82	123	164	205	246	287	328	9	50	91	132	173	213	254	295	336	17	58	99
1793	G.P.	16	21	16	10	14	27	43	61	80	99	116	131	142	143	137	132	138	151	166	183	201	218	233	245	250	245	239
	M.L.	122	163	204	245	286	327	8	48	89	130	171	212	253	294	335	16	57	98	139	180	220	261	302	343	24	65	106
1826	G.P.	16	18	11	8	15	28	45	63	82	101	118	132	140	140	133	131	139	152	168	185	203	219	234	245	247	241	236
	M.L.	130	171	212	253	294	335	16	56	97	138	179	220	261	302	343	24	65	106	147	188	228	269	310	351	32	73	114
1813	G.P.	14	14	7	6	15	29	47	65	84	102	119	132	139	136	129	129	139	153	170	186	205	221	235	244	244	237	234
	M.L.	138	179	220	261	302	343	24	64	105	146	187	228	269	310	351	32	73	114	155	196	236	277	318	359	40	81	122
1800	G.P.	13	10	3	5	16	31	49	68	87	104	120	132	136	131	125	129	140	155	171	189	207	223	236	242	241	233	223
	M.L.	145	186	227	268	309	350	31	71	112	153	194	235	276	317	358	39	80	121	162	203	243	284	325	6	47	88	129
1833	G.P.	10	5	360	4	16	32	51	69	88	105	121	132	133	127	123	129	141	157	173	191	209	224	236	241	237	230	221
	M.L.	153	194	235	276	317	358	39	79	120	161	202	243	284	325	6	47	88	129	170	211	251	292	333	14	55	96	137
1820	G.P.	7	0	357	4	17	34	53	72	90	107	122	130	130	123	121	129	142	159	176	193	210	225	236	238	233	227	221
	M.L.	161	202	243	284	325	6	47	87	128	169	210	251	292	333	14	55	96	137	178	219	259	300	341	22	63	104	145
1807	G.P.	3	355	355	4	19	36	54	74	92	109	122	129	125	118	120	129	144	161	178	195	212	226	235	235	228	224	220
	M.L.	169	210	251	292	333	14	55	95	136	177	218	259	300	341	22	63	104	145	186	227	267	308	349	30	71	112	153
1994	G.P.	358	352	354	5	20	38	57	76	94	110	121	126	121	115	119	130	145	162	180	197	213	226	234	232	225	223	231
	M.L.	176	217	258	299	340	21	62	102	143	184	225	266	307	348	29	70	111	152	193	234	274	315	356	37	78	119	160
1827	G.P.	354	349	353	6	22	40	59	78	96	111	121	123	117	113	119	131	147	164	182	199	215	227	232	228	221	222	232
	M.L.	184	225	266	307	348	29	70	110	151	192	233	274	315	356	37	78	119	160	201	242	282	323	4	45	86	127	168
1814	G.P.	349	346	353	7	24	42	61	80	97	112	120	119	112	111	119	132	149	166	184	201	216	227	230	223	218	222	233
	M.L.	193	234	275	316	357	38	79	119	160	201	242	283	324	5	46	87	128	169	210	251	291	332	13	54	95	136	177
1801	G.P.	345	344	353	8	26	45	64	82	99	112	118	115	108	109	120	134	151	169	186	203	217	226	227	219	216	222	234

Year A.D.	270 dys.	280 dys.	290 dys.	300 dys.	310 dys.	320 dys.	330 dys.	340 dys.	350 dys.	360 dys.
	30	71	112	153	194	235	275	316	357	38
1792	280	281	273	271	278	291	307	325	344	2
	37	78	119	160	201	242	282	323	4	45
1825	279	277	270	269	278	292	309	327	345	4
	45	86	127	168	209	250	290	331	12	53
1812	277	273	266	268	279	294	311	329	348	5
	53	94	135	176	217	258	298	339	20	61
1799	274	268	263	268	280	296	313	332	350	7
	60	101	142	183	224	265	305	346	27	68
1832	272	264	262	268	281	297	315	334	352	8
	69	110	151	192	233	274	314	355	36	77
1819	268	260	260	268	282	299	317	336	353	9
	77	118	159	200	241	282	322	363	44	85
1806	264	257	259	269	284	301	319	338	355	10
	85	126	167	208	249	290	330	11	52	93
1793	259	254	259	270	286	303	322	340	357	11
	92	133	174	215	256	297	337	18	59	100
1826	255	252	260	271	287	305	323	341	358	12
	100	141	182	223	264	305	345	26	67	108
1813	251	251	259	273	290	307	326	343	359	11
	108	149	190	231	272	313	353	34	75	116
1800	248	250	260	275	292	310	328	345	0	11
	115	156	197	238	279	320	0	41	82	123
1833	245	249	261	276	293	312	329	346	1	9
	123	164	205	246	287	328	8	49	90	131
1820	243	249	262	278	296	314	332	348	1	7
	131	172	213	254	295	336	16	57	98	139
1807	241	250	263	280	297	316	333	349	1	5
	140	181	222	263	304	345	25	66	107	148
1794	240	251	266	282	300	318	335	350	0	1
	147	188	229	270	311	352	32	73	114	155
1827	240	251	267	284	302	320	336	350	359	358
	155	196	237	278	319	0	40	81	122	163
1814	240	253	268	286	304	322	338	351	356	354
	163	204	245	286	327	8	48	89	130	171
1801	240	254	270	288	306	323	339	350	354	348
	170	211	252	293	334	15	55	96	137	178
1834	241	255	272	290	308	325	340	350	351	344
	178	219	260	301	342	23	63	104	145	186
1821	242	257	274	292	310	327	340	348	347	340
	186	227	268	309	350	31	71	112	153	194
1808	243	259	277	294	312	328	340	346	342	336
	194	235	276	317	358	39	79	120	161	202
1995	245	261	279	296	314	329	340	344	338	333
	201	242	283	324	5	46	86	127	168	209
1828	246	263	281	298	315	330	339	340	334	331
	209	250	291	332	13	54	94	135	176	217
1815	248	265	283	300	317	330	338	337	329	329
	218	259	300	341	22	63	103	144	185	226
1802	250	267	285	302	318	330	336	332	325	327

TABLE IV—Jupiter eye-table.

Showing for every ten days in the Indian solar year the mean longitude of Jupiter corresponding to the actual geocentric place, entered in heavy type in column 1. (Text page 132.)

Actual geocentric place.	0 dy.	10 dys.	20 dys.	30 dys.	40 dys.	50 dys.	60 dys.	70 dys.	80 dys.	90 dys.	100 dys.	110 dys	120 dys.	130 dys.	140 dys.	150 dys.	160 dys	170 dys.	180 dys.
	Degrees.	Degrees	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
	Mean longitude.												Mean longitude.						
0	0	358	356	355	353	351	349	349	348	348	348	348	349	350	352	353	354	357	358
10	11	9	7	5	3	2	0	359	358	358	357	356	357	358	359	2	2	3	5
20	21	20	18	17	14	12	10	9	8	8	6	6	6	7	8	8	9	11	13
30	33	31	29	27	23	23	22	21	19	18	16	15	15	16	17	17	18	19	20
40	43	42	40	39	36	35	33	31	30	28	26	26	26	25	25	24	26	27	29
50	55	53	51	50	48	46	44	43	41	40	38	35	35	35	35	35	35	35	36
60	64	64	63	62	59	58	56	55	52	51	48	47	46	45	45	44	44	44	45
70	76	75	75	73	71	69	67	66	64	63	60	58	57	56	55	55	53	54	54
80	86	86	85	84	84	81	79	77	75	74	71	70	68	67	66	65	64	63	63
90	96	97	97	95	93	92	91	90	88	86	84	82	80	78	77	76	74	74	73
100	106	107	107	107	105	105	103	102	100	98	95	94	92	90	89	87	86	84	84
110	117	116	117	117	117	115	114	113	112	111	108	107	105	103	101	99	97	96	95
120	126	127	128	128	127	127	126	125	125	123	120	119	117	115	113	112	109	107	107
130	135	136	137	138	138	138	138	137	136	133	133	131	130	128	126	124	121	120	118
140	144	146	148	149	149	149	149	149	149	147	145	143	142	140	139	137	135	132	130
150	153	155	157	158	158	159	160	160	160	159	157	156	155	153	151	149	146	145	143
160	163	165	166	168	168	169	170	171	171	172	169	168	167	165	164	162	160	158	155
170	171	173	175	177	178	180	181	182	182	182	181	180	179	178	177	175	172	170	169
180	180	182	185	186	187	188	191	192	193	194	192	192	191	191	189	188	185	183	182
190	189	191	193	196	197	199	200	202	203	204	203	203	204	202	202	200	199	197	194
200	198	200	201	204	205	207	210	211	212	213	213	214	215	214	213	212	210	209	208
210	206	209	211	214	215	216	219	221	222	224	224	225	225	226	225	225	222	222	220
220	216	218	220	222	223	225	227	229	231	232	233	234	235	235	236	236	234	233	232
230	225	226	228	230	231	234	236	237	240	242	242	245	245	247	247	247	246	245	243
240	235	236	237	239	240	242	244	246	247	250	251	253	254	255	256	257	256	256	255
250	244	245	246	248	248	250	252	254	256	258	260	261	263	264	265	266	266	266	267
260	253	254	255	256	256	259	261	262	265	267	268	270	272	273	275	276	276	276	277
270	263	264	264	265	266	267	269	270	273	275	275	277	279	281	283	284	284	285	286
280	274	273	273	274	274	275	277	278	281	282	283	286	288	289	292	293	294	295	296
290	284	284	283	282	283	284	286	287	289	290	291	293	295	297	299	301	302	303	304
300	294	293	293	293	292	293	294	295	296	298	299	301	303	305	308	309	309	311	312
310	305	304	304	303	302	301	302	303	304	305	307	309	310	313	315	317	318	320	321
320	315	315	313	313	311	311	311	312	313	314	315	316	318	320	322	324	325	327	329
330	327	325	324	322	321	320	320	321	321	322	322	324	325	327	329	331	332	335	337
340	337	336	335	333	331	331	330	330	330	330	330	331	334	335	337	339	340	342	343
350	349	347	345	343	341	340	340	339	339	339	339	340	341	343	344	346	347	349	351

Actual geocentric place.	190 dys.	200 dys.	210 dys.	220 dys.	230 dys.	240 dys.	250 dys.	260 dys.	270 dys.	280 dys.	290 dys.	300 dys.	310 dys.	320 dys.	330 dys.	340 dys.	350 dys.	360 dys.
	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
	Mean longitude.																	
0°	0	3	5	6	6	7	10	10	10	10	10	9	9	7	6	4	2	1
10°	7	10	12	12	14	15	17	18	19	19	19	19	18	18	17	15	13	11
20°	15	17	19	20	21	23	26	27	28	28	29	28	28	28	27	25	24	23
30°	22	25	27	28	30	32	33	35	36	37	37	38	38	38	38	36	34	33
40°	30	32	34	35	37	39	41	42	44	44	46	46	47	47	47	45	45	45
50°	38	39	41	42	44	47	48	50	53	53	55	56	57	58	58	56	56	55
60°	46	48	49	51	52	54	56	58	60	61	63	65	66	66	67	66	66	66
70°	55	56	57	58	60	62	64	66	68	69	70	72	73	74	75	75	76	76
80°	63	64	65	67	68	71	72	74	76	77	79	81	83	84	86	86	86	86
90°	74	74	75	75	77	78	80	82	84	84	87	89	91	93	94	95	96	96
100°	83	83	83	84	85	87	88	90	93	93	95	98	100	101	104	104	105	106
110°	95	95	95	94	95	96	98	99	102	102	104	106	108	110	112	113	114	115
120°	105	105	104	104	104	105	106	107	109	110	112	114	116	119	120	121	124	125
130°	117	116	116	114	115	115	116	117	119	119	120	123	125	128	130	131	133	135
140°	128	128	127	125	125	125	126	127	128	128	130	132	134	136	138	139	141	144
150°	141	140	139	136	137	135	136	136	137	137	139	140	143	145	148	149	151	153
160°	153	152	151	149	148	147	147	147	148	148	149	150	152	154	156	157	159	161
170°	167	165	164	161	159	159	158	158	158	158	158	159	161	163	165	167	169	170
180°	180	178	176	173	172	171	170	170	169	169	169	170	171	173	174	175	177	179
190°	193	191	190	186	184	184	182	181	181	179	179	180	181	182	183	184	186	188
200°	206	204	202	199	198	196	194	193	191	191	191	190	191	192	193	193	196	197
210°	218	216	215	212	210	209	207	205	204	202	201	201	202	202	203	203	204	206
220°	231	229	227	224	222	221	219	218	217	214	214	212	213	213	212	212	213	216
230°	242	241	240	237	235	234	232	230	228	226	225	224	223	223	223	223	223	224
240°	254	254	252	249	247	246	244	242	241	238	237	236	235	233	233	233	234	235
250°	265	265	263	261	260	258	257	255	253	250	248	247	246	245	244	243	243	244
260°	276	276	274	273	271	270	269	266	265	262	261	259	257	255	255	253	253	253
270°	286	286	285	284	283	281	280	278	276	273	272	270	269	267	266	265	264	264
280°	296	297	296	295	293	292	291	290	288	286	284	283	281	279	277	275	274	274
290°	305	306	306	305	304	304	303	302	300	297	295	294	292	290	289	287	285	285
300°	313	314	314	314	315	314	313	311	311	308	307	305	304	301	300	297	296	295
310°	322	324	324	324	324	324	324	322	322	319	318	316	315	313	312	309	307	305
320°	330	331	333	333	333	334	333	333	332	330	329	328	326	324	322	319	318	317
330°	337	339	340	342	343	343	343	343	342	341	339	338	337	336	334	331	329	327
340°	346	347	349	349	351	352	352	352	352	351	350	349	348	346	345	342	340	339
350°	353	355	356	357	358	0	1	1	1	0	0	0	358	357	356	353	351	348

TABLE IV.—Venus Eye-Table.

Showing actual longitude (in ordinary type) corresponding to mean longitude (in heavy type) for every ten complete days of the Indian Solar year. (Text page 132.)

Mean longitude. Degrees.	0 dy. Degrees.	10 dys. Degrees.	20 dys. Degrees.	30 dys. Degrees.	40 dys. Degrees.	50 dys. Degrees.	60 dys. Degrees.	70 dys. Degrees.	80 dys. Degrees.	90 dys. Degrees.	100 dys. Degrees.	110 dys. Degrees.	120 dys. Degrees.	130 dys. Degrees.	140 dys. Degrees.	150 dys. Degrees.	160 dys. Degrees.	170 dys. Degrees.	180 dys. Degrees.
0	0	5	11	17	22	28	34	40	46	52	58	65	72	80	88	99	112	131	156
10	3	10	15	20	26	32	38	44	50	55	62	68	75	82	89	98	108	121	140
20	8	14	19	25	31	36	42	48	53	59	66	71	77	84	92	99	107	118	131
30	12	20	24	29	35	40	46	51	58	63	69	75	81	88	94	101	109	118	128
40	16	22	27	33	39	45	50	56	62	67	73	79	85	91	97	104	111	118	127
	0	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**	**160**	**170**	**180**
50	20	26	32	37	43	49	54	60	66	71	77	83	89	95	100	107	113	121	128
60	24	30	36	42	47	53	58	64	69	75	81	87	93	98	104	110	117	123	130
70	28	35	40	46	51	57	63	68	74	79	85	91	96	102	108	114	120	127	133
80	32	38	44	50	55	61	66	72	78	83	89	95	100	106	112	118	124	130	137
90	38	42	48	54	60	65	71	77	82	88	93	99	105	110	116	122	128	134	140
	0	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**	**160**	**170**	**180**
100	38	45	51	57	63	69	75	81	87	92	98	103	109	114	120	126	132	137	144
110	42	48	55	61	67	73	79	85	90	96	102	107	112	119	124	130	136	142	148
120	44	51	58	65	71	77	83	88	94	100	106	111	117	123	128	134	140	146	151
130	45	53	61	68	75	81	87	93	98	104	110	116	121	127	133	138	144	150	156
140	45	55	63	71	77	84	91	96	103	108	114	119	125	131	136	142	148	154	159
	0	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**	**160**	**170**	**180**
150	43	45	65	73	80	88	94	100	106	112	118	124	130	135	141	146	152	158	164
160	37	53	65	74	83	90	97	104	110	116	122	128	133	140	145	151	156	162	168
170	28	46	62	74	84	92	100	107	113	120	125	132	137	143	149	155	161	166	172
180	1	32	56	72	84	93	102	110	117	123	129	136	142	148	153	159	165	170	176
190	336	7	41	65	81	93	103	112	119	126	133	139	145	151	158	163	157	174	180
	0	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**	**160**	**170**	**180**
200	322	345	15	50	74	91	94	113	121	129	136	143	149	155	161	167	173	179	185
210	315	338	355	22	59	83	100	112	123	131	139	146	153	158	165	171	177	183	189
220	313	325	342	4	34	68	92	109	122	132	141	148	155	162	168	175	181	187	193
230	314	323	335	350	14	43	77	101	119	132	143	150	158	165	172	178	185	191	197
240	315	323	338	345	0	23	53	87	110	128	141	151	160	168	175	182	188	195	201
	0	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**	**160**	**170**	**180**
250	317	325	333	343	354	9	30	61	92	119	138	151	160	170	178	185	192	198	204
260	321	327	335	343	353	4	19	42	70	101	128	147	160	171	180	188	195	202	209
270	324	330	337	345	352	3	13	28	48	79	109	138	156	170	181	190	197	205	212
280	327	334	340	347	354	3	12	23	38	57	87	117	147	165	179	190	200	207	215
290	331	337	344	350	357	4	12	22	32	47	66	95	127	157	175	189	200	209	217
	0	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**	**160**	**170**	**180**
300	335	341	347	353	0	7	14	22	31	42	56	75	104	138	166	185	199	210	222
310	339	345	350	357	3	10	16	24	32	41	51	65	84	114	146	174	194	209	220
320	343	349	355	1	7	13	19	26	33	41	50	61	74	94	119	156	183	205	219
330	346	353	359	5	11	17	23	29	36	43	51	60	79	83	102	130	164	192	215
340	351	356	3	8	14	21	26	33	39	46	53	60	70	80	92	112	139	174	203
350	355	1	7	13	18	24	30	36	42	48	55	62	70	79	89	102	121	147	184

Mean longitude. Degrees.	190 dys. Degrees.	200 dys. Degrees.	210 dys. Degrees.	220 dys. Degrees.	230 dys. Degrees.	240 dys. Degrees.	250 dys. Degrees.	260 dys. Degrees.	270 dys. Degrees.	280 dys. Degrees.	290 dys. Degrees.	300 dys. Degrees.	310 dys. Degrees.	320 dys. Degrees.	330 dys. Degrees.	340 dys. Degrees.	350 dys. Degrees.	360 dys. Degrees.
0	191	223	244	259	270	280	288	296	302	309	315	321	328	334	339	345	351	357
10	167	201	234	254	270	281	290	298	305	312	319	325	332	338	344	349	355	1
20	159	177	211	244	264	280	291	300	308	315	322	329	335	342	348	354	359	5
30	141	158	185	221	254	275	290	301	310	318	326	333	340	345	352	357	4	10
40	137	151	168	197	231	265	286	300	311	320	328	336	342	350	355	2	7	13
	190	**200**	**210**	**220**	**230**	**240**	**250**	**260**	**270**	**280**	**290**	**300**	**310**	**320**	**330**	**340**	**350**	**360**
50	137	147	160	179	207	242	275	296	311	321	330	338	346	353	359	5	11	17
60	138	147	157	170	188	217	252	284	306	320	331	340	348	356	2	6	16	21
70	148	149	157	167	180	199	228	263	295	316	330	341	350	358	6	12	19	25
80	143	150	158	167	177	191	208	235	275	305	326	341	351	0	9	16	22	29
90	146	152	160	168	177	187	200	219	247	288	316	336	351	1	10	18	25	32
	190	**200**	**210**	**220**	**230**	**240**	**250**	**260**	**270**	**280**	**290**	**300**	**310**	**320**	**330**	**340**	**350**	**360**
100	150	156	163	171	178	186	198	210	229	258	297	326	346	0	11	20	28	35
110	154	160	166	173	180	188	197	207	220	240	268	307	334	356	10	21	30	38
120	157	163	170	176	183	190	198	207	217	230	250	279	321	344	6	20	31	40
130	161	167	173	180	187	193	200	208	217	228	241	262	289	327	356	16	30	41
140	166	171	177	183	190	196	203	210	218	227	238	252	270	300	332	6	25	39
	190	**200**	**210**	**220**	**230**	**240**	**250**	**260**	**270**	**280**	**290**	**300**	**310**	**320**	**330**	**340**	**350**	**360**
150	169	175	182	187	194	200	205	213	220	228	237	248	262	280	310	342	16	35
160	174	180	185	192	197	204	209	218	223	231	238	248	257	272	290	320	355	26
170	177	183	189	195	202	207	213	220	226	234	241	249	258	268	282	300	329	4
180	182	188	193	199	205	211	217	224	230	236	243	251	259	268	278	292	311	341
190	186	192	198	204	209	215	222	227	234	240	247	254	261	269	278	288	301	319
	190	**200**	**210**	**220**	**230**	**240**	**250**	**260**	**270**	**280**	**290**	**300**	**310**	**320**	**330**	**340**	**350**	**360**
200	190	196	202	208	213	220	225	232	237	244	250	257	264	271	279	288	298	312
210	195	200	206	212	218	223	231	236	242	248	254	261	267	274	281	289	298	308
220	199	208	210	216	222	228	233	239	245	252	258	264	271	277	284	291	299	308
230	202	209	215	220	226	232	238	244	250	256	262	268	274	281	287	294	301	309
240	207	213	219	225	230	236	242	248	254	260	266	272	278	284	291	297	304	311
	190	**200**	**210**	**220**	**230**	**240**	**250**	**260**	**270**	**280**	**290**	**300**	**310**	**320**	**330**	**340**	**350**	**360**
250	211	217	223	229	235	240	246	252	258	264	270	276	282	288	294	301	307	314
260	214	221	227	233	239	245	251	257	262	268	275	280	286	292	298	304	311	317
270	218	224	231	236	243	249	255	261	267	273	278	284	290	296	302	308	315	321
280	222	228	234	241	247	253	259	265	271	277	283	288	294	300	306	312	318	325
290	225	232	238	244	251	257	263	269	275	281	286	293	298	304	310	316	322	328
	190	**200**	**210**	**220**	**230**	**240**	**250**	**260**	**270**	**280**	**290**	**300**	**310**	**320**	**330**	**340**	**350**	**360**
300	227	235	241	248	254	261	267	273	279	285	291	297	303	308	314	320	326	332
310	229	237	245	252	258	265	271	278	283	289	295	301	307	313	319	324	330	336
320	230	239	248	255	262	269	275	281	288	293	299	305	311	317	323	329	334	340
330	230	240	249	258	265	272	279	285	291	298	303	310	315	321	327	333	339	344
340	225	239	250	260	268	275	282	289	295	301	308	314	319	325	331	337	343	349
350	213	235	249	260	270	278	285	292	298	305	311	318	324	330	336	341	347	352

TABLE IV.—Saturn Eye-Table.

howing, for every tenth-day in the Indian Solar year, the mean longitude of Saturn corresponding to his actual geocentric place, entered in heavy type in column 1. (Text, page 132.)

Actual geocentric place.	0 dy.	10 dys.	20 dys.	30 dys.	40 cys.	50 dys.	60 dys.	70 dys.	80 dys.	90 dys.	100 dys.	110 dys.	120 dys.	130 dys.	140 dys.	150 dys.	160 dys.	170 dys.	Actual geocentric place.	180 dys.	190 dys.	200 dys.	210 dys.	220 dys.	230 dys.	240 dys.	250 dys.	260 dys.	270 dys.	280 dys.	290 dys.	300 dys.	310 dys.	320 dys.	330 dys.	340 dys.	350 dys.	360 dys.
	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.		Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	
	Mean longitude.									Mean longitude.										Mean longitude.										Mean longitude.						
0°	7	6	5	3	3	2	1	1	0	359	0	0	0	1	2	2	4	4	**0°**	5	7	7	8	10	10	11	12	12	12	11	12	11	10	10	9	8	8	6
10°	16	16	14	13	13	11	10	10	10	10	10	10	9	11	11	11	13	13	**10°**	13	14	15	16	17	18	19	20	20	20	20	21	20	20	20	19	18	18	17
20°	26	25	24	24	24	22	21	21	20	19	19	18	18	19	19	19	20	21	**20°**	21	23	23	24	26	27	27	29	29	30	29	30	30	30	30	29	28	28	27
30°	36	36	35	33	32	32	30	30	28	28	28	27	27	28	28	28	29	29	**30°**	29	31	31	32	33	34	35	36	37	37	37	39	39	38	39	38	37	37	36
40°	46	45	44	43	42	41	40	40	39	38	38	37	36	36	36	36	37	37	**40°**	37	39	39	40	42	42	43	45	45	45	46	47	48	47	48	48	47	47	46
50°	55	55	54	53	53	51	50	50	48	47	47	46	45	45	44	44	45	45	**50°**	45	47	47	48	49	50	51	52	53	54	54	55	56	56	56	56	56	56	55
60°	65	64	63	62	62	61	59	59	57	57	57	56	55	55	54	53	54	54	**60°**	54	55	55	56	57	58	59	60	61	62	62	64	64	64	65	65	65	66	65
70°	73	73	73	71	71	71	70	69	68	68	66	65	64	64	63	62	62	62	**70°**	62	63	63	63	65	65	66	68	68	69	70	71	72	72	73	74	73	74	74
80°	83	83	82	82	81	80	79	79	77	76	76	74	73	73	73	72	72	71	**80°**	71	72	72	72	73	74	74	76	77	77	78	79	79	80	81	82	81	82	82
90°	91	92	91	91	91	90	88	88	88	86	86	84	83	83	82	81	81	80	**90°**	79	80	80	80	81	81	82	83	84	85	85	87	88	88	90	90	90	92	92
00°	100	101	101	101	101	100	99	99	97	96	96	94	93	92	91	90	90	90	**100°**	89	89	89	89	90	90	90	92	93	93	94	95	95	96	98	98	98	100	100
10°	109	110	110	110	110	109	108	108	107	106	106	104	103	103	102	100	100	99	**110°**	99	99	98	97	98	98	98	100	100	101	102	103	104	105	106	107	107	109	109
20°	118	119	119	119	119	119	119	119	118	117	116	115	113	113	112	110	110	109	**120°**	109	109	107	107	108	108	108	109	109	109	109	112	112	112	114	115	115	117	117
30°	127	128	128	129	129	129	128	128	128	127	126	125	124	123	122	121	121	121	**130°**	118	118	116	116	117	117	116	117	118	118	118	119	121	121	123	124	124	126	127
40°	136	137	137	138	138	138	138	138	137	137	137	135	135	134	133	132	131	130	**140°**	128	128	127	126	126	126	125	126	126	126	127	128	129	129	131	132	133	134	135
50°	145	146	147	148	149	149	149	149	148	148	148	147	145	145	144	142	142	140	**150°**	139	138	138	137	137	136	136	137	136	135	136	137	137	138	140	140	141	143	143
60°	154	155	156	157	158	158	158	159	159	158	158	157	156	156	155	154	154	152	**160°**	151	150	148	148	148	147	146	146	146	146	146	147	147	148	149	150	151	153	153
70°	164	165	165	166	167	167	168	169	169	169	169	168	168	168	167	165	164	163	**170°**	162	161	160	159	158	157	156	156	156	156	156	157	157	158	159	159	160	161	162
80°	173	175	175	176	178	178	179	179	179	179	180	180	179	179	178	177	176	175	**180°**	174	173	171	171	170	169	168	168	167	166	166	167	167	167	169	169	170	172	172
90°	182	184	185	185	186	187	187	188	190	190	191	189	189	189	187	188	188	186	**190°**	185	185	184	182	182	181	179	179	178	177	177	178	177	177	179	179	179	181	181
00°	193	194	195	196	197	197	198	200	200	200	201	201	201	201	200	200	200	199	**200°**	198	197	196	194	193	192	191	191	190	189	188	189	188	188	189	189	190	191	191
10°	202	204	205	206	206	208	209	211	211	212	213	213	213	214	213	212	212	211	**210°**	210	209	208	206	206	204	203	203	202	201	200	200	199	199	200	200	200	201	202
20°	212	214	215	215	217	218	219	220	221	222	223	224	224	225	224	224	224	223	**220°**	222	222	220	219	218	218	216	215	214	213	212	212	211	211	211	211	210	212	212
30°	224	225	226	227	228	228	229	231	232	232	234	234	235	235	235	235	235	236	**230°**	234	234	233	232	232	230	228	228	226	225	224	223	222	221	222	221	221	223	223
40°	234	235	236	236	238	239	240	241	243	243	245	245	245	246	246	246	247	247	**240°**	247	247	245	244	244	243	240	240	239	237	236	236	235	234	235	234	233	234	234
50°	245	246	246	247	248	249	251	252	253	253	255	256	256	258	258	258	259	259	**250°**	259	258	257	257	256	255	254	252	251	250	250	248	247	247	246	245	244	245	245
60°	257	258	258	258	259	259	260	262	262	263	265	266	267	268	268	269	270	269	**260°**	269	269	269	268	268	267	265	266	264	263	261	261	259	258	258	257	256	256	256
70°	267	268	268	268	270	270	270	272	273	274	276	276	277	278	279	279	280	280	**270°**	280	281	280	280	280	280	278	278	276	275	273	273	271	270	270	268	268	268	268
80°	278	279	279	279	280	280	280	282	283	284	285	286	287	289	289	290	291	291	**280°**	292	293	292	292	292	291	290	290	288	287	288	286	284	283	282	281	280	280	279
90°	289	290	289	289	290	290	291	292	292	293	295	295	296	298	299	299	301	301	**290°**	302	303	303	303	303	302	301	301	300	299	297	297	296	294	293	292	291	291	290
00°	301	302	301	300	301	301	301	302	302	303	305	306	306	308	309	310	311	311	**300°**	311	312	313	313	313	313	313	313	312	311	309	309	308	306	306	304	302	302	301
10°	312	312	311	311	311	311	311	312	312	312	314	315	315	316	318	319	320	321	**310°**	322	323	323	323	324	324	324	324	323	322	320	320	319	317	317	316	315	315	313
20°	323	323	322	321	321	321	321	322	322	322	323	323	324	326	327	327	329	330	**320°**	332	333	333	333	334	334	334	334	333	332	331	331	330	329	329	327	326	325	324
30°	333	334	333	332	332	332	331	332	332	331	333	333	334	335	335	337	339	329	**330°**	340	342	342	343	344	344	344	344	344	343	342	342	341	340	339	338	336	336	334
40°	345	345	344	342	342	341	340	341	341	340	341	342	342	344	344	345	347	347	**340°**	348	350	351	351	352	353	353	354	353	353	352	352	351	350	350	348	347	347	346
50°	355	355	355	354	352	352	351	351	351	350	351	351	352	353	354	354	356	356	**350°**	356	358	359	359	1	1	1	2	2	2	2	3	1	0	0	359	358	358	356

TABLE IV-A.

Mean Places of Planets according to Indian Ephemeris at Commencement of each Century from 3102 B.C. to 1 B.C. (K.Y. 0 to K.Y. 3101.)

			Mars.	Mercury.	Jupiter.	Venus.	Saturn.
			Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
B.C. 3102	K.Y.	0	347·00	318·06	15·73	29·55	339·20
3101		1	178·4072	12 8263	46·0829	254·7391	351·4239
3001		101	238·9342	88 8463	200 8275	93 7242	133·3308
2901		201	299·4612	164·8623	355·5721	292·7093	275·2377
2801		301	359·9882	240·8803	150·3167	131·6944	57 1446
2701		401	60·5152	316 8983	305·0613	330·6795	199 0515
2601		501	121·0422	32 9163	99 8059	169·6646	340·9584
2501		601	181·5692	108·9343	254·5505	8 6497	122·8653
2401		701	242·0962	184·8523	49·2951	207·6348	264·7722
2301		801	302 6232	260·9703	204·0397	46·6199	46·6791
2201		901	3·1502	336·9883	358 7843	245·6050	188·5860
2101		1001	63·6772	53·0068	153·5289	84·5901	330·4929
2001		1101	124·2042	129·0243	308·2735	283·5752	112·3998
1901		1201	184·7312	205·0423	103 0181	122·5603	254·3067
1801		1301	245·2582	281·0603	257·7627	321·5454	36·2136
1701		1401	305·7852	357·0783	52·5073	160·5305	178·1205
1601		1501	6·3122	73·0963	207·2519	359·5156	320·0274
1501		1601	66·8392	149·1143	1·9965	198·5007	101·9343
1401		1701	127·3662	225·1323	156·7411	37·4858	243·8412
1301		1801	187·8932	301·1503	311 4857	236·4709	25·7481
1201		1901	248·4202	17 1683	106·2303	75·4560	167·6550
1101		2001	308 9472	93·1863	260·9749	274·4411	309·5619
1001		2101	9·4742	169·2043	55·7195	113·4262	91·4688
901		2201	70·0012	245 2223	210·4641	312·4113	233·3757
801		2301	130·5282	321·2403	5·2087	151·3964	15·2826
701		2401	191·0552	37·2583	159·9533	350·3815	157·1895
601		2501	251·5822	113·2763	314·6979	189·3666	299·0964
501		2601	312·1092	189·2943	109·4425	28·3517	81·0033
401		2701	12·6362	265·3123	264·1871	227·3368	222·9102
301		2801	73·1632	341·3303	58·9317	66·3219	4·8171
201		2901	133·6902	57·3483	213·6763	265·3070	146·7240
101		3001	194·2172	133 3663	8·4209	104·2921	288·6309
1		3101	254·7442	209·3843	163·1655	303·2772	70·5378

TABLE IV-B.

Planets.—Revolutions and Increases of Longitude for different periods according to Sūrya Siddhānta and Indian Ephemeris. (See page 121, paragraph 297 of Text.)

	1,000 Years.			100 Years.			10 Years.			1 Year.		
	Revolutions and Fraction of Revolution.	Increase of Longitude.		Revolutions and Fraction of Revolution.	Increase of Longitude.		Revolutions and Fraction of Revolution.	Increase of Longitude		Revolutions and Fraction of Revolution.	Increase of Longitude.	
		Degrees.	Ephemeris Degrees.		Degrees.	Ephemeris Degrees.		Degrees.	Ephemeris Degrees.		Degrees.	Ephemeris Degrees.
	Sūrya siddhānta.			Sūrya siddhānta.			Sūrya siddhānta.			Sūrya siddhānta.		
Mars.	531·674	242·64	245·27	53·1674	60·264	60·53	5·31674	114·0264	115·05	·531674	191·40264	191·40
Jupiter.	84·3102	111·672	107·447	8·43102	155·1672	154·74	·843102	303·51672	303·47	·0843102	30·351672	30·35
Saturn.	33·928	334·08	339·069	3·3928	141·408	141·91	·33928	122·1408	122·19	·033928	12·21408	12·22
Venus.	1625·55	198·00	189·852	162·555	199·8	198·98	16·2555	91·98	91·90	1·62555	225·198	225·19
Mercury	4152·10	36·00	40·18	415·210	75·6	76·018	41·521	187·56	187·6	4·1521	54·75	54·76

Mean longitude of planets at commencement of every millennium.			Mars.		Jupiter.		Saturn.		Venus.		Mercury.	
			Sūrya siddhānta Degrees.	Indian Ephemeris Degrees.	Sūrya siddhānta Degrees.	Indian Ephemeris Degrees.	Sūrya siddhānta Degrees.	Indian Ephemeris Degrees.	Sūrya siddhānta Degrees.	Indian Ephemeris Degrees.	Sūrya siddhānta Degrees.	Indian Ephemeris Degrees.
B.C. 3102	K.Y.	0	358·86	347·00	359·82	15·73	359·93	339·20	356·52	29·55	351·12	318·06
3101		1	190·26	178·41	30·17	46·08	12·14	351·42	221·72	254·74	45·87	12·83
2101		1001	72·90	63·68	141·84	153·53	346·22	330·49	59·72	84·59	81·87	53·01
1101		2001	315·54	308·95	253·51	260·97	320·80	309·56	257·72	274·44	117·87	93·19
101		3001	198·18	194·22	5·18	8·42	294·38	288·63	95·72	104·29	153·87	133·37
A.D. 900		4001	80·82	79·49	116·85	115·87	268·46	267·70	293·72	294·14	189·87	178·55
1900		5001	323·48	324·76	228·52	223·31	242·54	246·77	131·72	123·99	225·87	213·78

TABLE IV-C.

Sun's mean Longitude and Equation for every complete day of Indian Solar year.

Day	☉'s mean longitude.	Eqn.	Day	☉'s mean longitude.	Eqn.	Day	☉'s mean longitude.	Eqn.	Day	☉'s mean longitude.	Eqn.	Day	☉'s mean longitude.	Eqn.
	Degrees.			Degrees.			Degrees.			Degrees.			Degrees.	
0	357·8606	+ 2·1378	74	70·7952	+ ·2486	148	143·7298	−1·9980	222	216·6643	−1·4308	296	289·5984	+1·1814
1	358·0462	2·1333	75	71·7808	·2167	149	144·7154	2·0122	223	217·6499	1·4028	297	290·5845	1·2130
2	359·8318	2·1228	76	72·7664	·1717	150	145·7010	2·0253	224	218·6356	1·3733	298	291·5701	1·2439
3	0·8174	2·1133	77	73·7520	·1333	151	146·6866	2·0369	225	219·6212	1·3439	299	292·5558	1·2747
4	1·8030	2·1036	78	74·7376	·0975	152	147·6722	2·0492	226	220·6068	1·3144	300	293·5414	1·3036
5	2·7886	2·0967	79	75·7232	·0600	153	148·6578	2·0611	227	221·5924	1·2828	301	294·5270	1·3322
6	3·7742	2·0858	80	76·7088	·0203	154	149·6434	2·0739	228	222·5780	1·2533	302	295·5126	1·3622
7	4·7598	2·0767	81	77·6944	·0167	155	150·6290	2·0858	229	223·5636	1·2228	303	296·4982	1·3903
8	5·7454	2·0647	82	78·6800	·0550	156	151·6146	2·0955	230	224·5492	1·1905	304	297·4838	1·4197
9	6·7310	2·0514	83	79·6656	·0933	157	152·6002	2·1036	231	225·5348	1·1589	305	298·4694	+1·4492
10	7·7166	2·0394	84	80·6512	·1314	158	153·5858	2·1136	232	226·5204	1·1283	306	299·4550	1·4747
11	8·7022	2·0267	85	81·6368	·1692	159	154·5714	2·1228	233	227·5060	1·0967	307	300·4406	1·5042
12	9·6878	2·0122	86	82·6224	·2073	160	155·5570	2·1314	234	228·4916	1·0614	308	301·4262	1·5297
13	10·6734	1·9986	87	83·6080	·2444	161	156·5426	2·1383	235	229·4772	1·0283	309	302·4118	1·5567
14	11·6590	1·9833	88	84·5936	·2833	162	157·5282	2·1433	236	230·4628	·9953	310	303·3974	1·5833
15	12·6446	1·9667	89	85·5792	·3208	163	158·5138	2·1494	237	231·4484	·9622	311	304·3830	1·6089
16	13·6302	1·9500	90	86·5648	·3572	164	159·4994	2·1567	238	232·4340	·9280	312	305·3686	1·6344
17	14·6158	1·9333	91	87·5504	·3955	165	160·4850	2·1603	239	233·4196	·8928	313	306·3542	1·6589
18	15·6014	1·9167	92	88·5360	·4333	166	161·4706	2·1617	240	234·4052	·8597	314	307·3398	1·6819
19	16·5870	1·9000	93	89·5216	·4692	167	162·4562	2·1667	241	235·3908	·8223	315	308·3254	1·7050
20	17·5726	1·8833	94	90·5072	·5061	168	163·4418	2·1692	242	236·3764	·7894	316	309·3110	1·7280
21	18·5582	1·8622	95	91·4928	·5433	169	164·4274	2·1728	243	237·3620	·7536	317	310·2966	1·7497
22	19·5438	1·8419	96	92·4784	·5789	170	165·4130	2·1742	244	238·3476	·7203	318	311·2822	1·7728
23	20·5294	1·8217	97	93·4640	·6167	171	166·3986	2·1755	245	239·3332	·6833	319	312·2678	1·7922
24	21·5150	1·8025	98	94·4496	·6525	172	167·3842	2·1769	246	240·3188	·6469	320	313·2534	1·8153
25	22·5006	1·7814	99	95·4352	·6894	173	168·3698	2·1755	247	241·3044	·6097	321	314·2390	1·8347
26	23·4862	1·7600	100	96·4208	·7228	174	169·3554	2·1742	248	242·2190	·5739	322	315·2226	1·8530
27	24·4718	1·7383	101	97·4064	·7586	175	170·3410	2·1728	249	243·2756	·5369	323	316·2102	1·8725
28	25·4574	1·7167	102	98·3920	·7944	176	171·3266	2·1714	250	244·2612	·5000	324	317·1958	1·8917
29	26·4430	1·6933	103	99·3776	·8289	177	172·3122	2·1678	251	245·2468	·4636	325	318·1814	1·9111
30	27·4286	1·6680	104	100·3632	·8633	178	173·2978	2·1642	252	246·3324	·4253	326	319·1670	1·9269
31	28·4142	1·6455	105	101·3488	·8986	179	174·2834	2·1597	253	247·2180	·3883	327	320·1526	1·6453
32	29·3998	1·6192	106	102·3344	·9333	180	175·2690	2·1561	254	248·2036	·3500	328	321·1382	1·9611
33	30·3854	1·5955	107	103·3200	·9667	181	176·2546	2·1489	255	249·1892	·3122	329	322·1238	1·9758
34	31·3710	1·5692	108	104·3056	1·0009	182	177·2402	2·1439	256	250·1748	·2753	330	323·1094	1·9917
35	32·3567	1·5455	109	105·2912	1·0333	183	178·2258	2·1367	257	251·1604	·2369	331	324·0950	2·0064
36	33·3423	1·5167	110	106·2769	1·0667	184	179·2114	2·1305	258	252·1460	·1992	332	325·0806	2·0211
37	34·3279	1·4914	111	107·2625	1·1000	185	180·1970	2·1219	259	253·1316	·1597	333	326·0662	2·0347
38	35·3135	1·4633	112	108·2481	1·1308	186	181·1827	2·1133	260	254·1172	·1228	334	327·0518	2·0483
39	36·2991	1·4358	113	109·2337	1·1622	187	182·1683	2·1061	261	255·1029	·0847	335	328·0370	2·0597
40	37·2847	1·4081	114	110·2193	1·1955	188	183·1539	2·0964	262	256·0885	·0469	336	329·0231	2·0708
41	38·2703	1·3778	115	111·2049	1·2253	189	184·1395	2·0853	263	257·0741	·0086	337	330·0087	2·0819
42	39·2559	1·3480	116	112·1905	1·2561	190	185·1251	2·0753	264	258·0597	+ ·0394	338	330·9943	2·0930
43	40·2415	1·3180	117	113·1761	1·2858	191	186·1107	2·0642	265	259·0453	·0764	339	331·9799	2·1017
44	41·2271	1·2894	118	114·1617	1·3167	192	187·0963	2·0519	266	260·0309	·1111	340	332·9655	2·1114
45	42·2127	1·2586	119	115·1473	1·3455	193	188·0819	2·0383	267	261·0165	·1469	341	333·9511	2·1211
46	43·1983	1·2297	120	116·1329	1·3739	194	189·0675	2·0261	268	262·0021	·1847	342	334·9367	2·1283
47	44·1839	1·1967	121	117·1185	1·4025	195	190·0531	2·0125	269	262·9877	·2239	343	335·9223	2·1369
48	45·1695	1·1647	122	118·1041	1·4333	196	191·0387	1·9978	270	263·9733	·2586	344	336·9079	2·1430
49	46·1551	1·1347	123	119·0897	1·4586	197	192·0243	1·9819	271	264·9589	·2992	345	337·8935	2·1480
50	47·1407	1·1014	124	120·0753	1·4883	198	193·0099	1·9661	272	265·9445	·3369	346	338·8791	2·1542
51	48·1263	1·0703	125	121·0609	1·5133	199	193·9955	1·9514	273	266·9301	·3739	347	339·8647	2·1592
52	49·1119	1·0369	126	122·0465	1·5405	200	194·9811	1·9333	274	267·9157	·4122	348	340·8503	2·1628
53	50·0975	1·0025	127	123·0321	1·5667	201	195·9967	1·9161	275	268·9013	·4500	349	341·8359	2·1653
54	51·0831	·9703	128	124·0177	1·5919	202	196·9523	1·9003	276	269·8869	·4869	350	342·8215	2·1689
55	52·0687	·9358	129	125·0037	1·6167	203	197·9379	1·8808	277	270·8725	·5253	351	343·8071	2·1703
56	53·0543	·9025	130	125·8889	1·6433	204	198·9235	1·8600	278	271·8581	·5611	352	344·7927	2·1717
57	54·0399	·8667	131	126·9745	1·6667	205	199·9091	1·8417	279	272·8437	·5980	353	345·7783	2·1730
58	55·0955	·8333	132	127·9601	1·6894	206	200·8947	1·8222	280	273·8293	·6347	354	346·7639	2·1755
59	56·0111	·7964	133	128·9457	1·7133	207	201·8803	1·8014	281	274·8149	·6692	355	347·7495	2·1764
60	56·9967	·7622	134	129·9313	1·7358	208	202·8659	1·7805	282	275·8005	·7061	356	348·7351	2·1739
61	57·9823	·7267	135	130·9169	1·7572	209	203·8515	1·7575	283	276·7861	·7419	357	349·7207	2·1714
62	58·9679	·6919	136	131·9025	1·7789	210	204·8371	1·7369	284	277·7717	·7764	358	350·7063	2·1700
63	59·9535	·6561	137	132·8881	1·8000	211	205·8227	1·7139	285	278·7573	·8122	359	351·6919	2·1686
64	60·9391	·6192	138	133·8737	1·8217	212	206·8083	1·6894	286	279·7429	·8469	360	352·6775	2·1650
65	61·9247	·5847	139	134·8593	1·8419	213	207·7939	1·6664	287	280·7285	·8803	361	353·6631	2·1625
66	62·9103	·5480	140	135·8449	1·8597	214	208·7795	1·6433	288	281·7141	·9147	362	354·6487	2·1589
67	63·8959	·5111	141	136·8305	1·8789	215	209·7651	1·6178	289	282·6997	·9500	363	355·6343	2·1528
68	64·8815	·4739	142	137·8161	1·8980	216	210·7507	1·5922	290	283·6853	·9833	364	356·6199	2·1467
69	65·8671	·4369	143	138·8017	1·9167	217	211·7363	1·5667	291	284·6709	1·0192	365	357·6055	2·1405
70	66·8527	·4000	144	139·7873	1·9333	218	212·7219	1·5411	292	285·6565	1·0508			
71	67·8383	·3622	145	140·7729	1·9500	219	213·7105	1·5130	293	286·6421	1·0850			
72	68·8239	·3192	146	141·7585	1·9667	220	214·6931	1·4869	294	287·6277	1·1167			
73	69·8096	·2869	147	142·7441	1·9825	221	215·6787	1·4589	295	288·6133	1·1483			

TABLE IV-D.

Decimal parts of ☉'s L. corresponding to decimal parts of a day.

Day.	Degree.	Day.	Degree.	Day.	Degree.	Day.	Degree.	Day.	Degree.	Day.	Degree.	Day.	Degree.	Day.	Degree.	Day.	Degree.
·01	·0039	·13	·1281	·24	·2365	·35	·3450	·46	·4534	·57	·5618	·68	·6702	·79	·7786	·90	·8870
·02	·0197	·14	·1380	·25	·2464	·36	·3548	·47	·4632	·58	·5716	·69	·6801	·80	·7885	·91	·8969
·03	·0296	·15	·1478	·26	·2563	·37	·3647	·48	·4731	·59	·5815	·70	·6899	·81	·7983	·92	·9067
·04	·0394	·16	·1577	·27	·2661	·38	·3745	·49	·4829	·60	·5914	·71	·6998	·82	·8082	·93	·9166
·05	·0493	·17	·1675	·28	·2760	·39	·3844	·50	·4928	·61	·6012	·72	·7096	·83	·8180	·94	·9265
·06	·0591	·18	·1774	·29	·2858	·40	·3942	·51	·5027	·62	·6111	·73	·7195	·84	·8279	·95	·9363
·07	·0690	·19	·1873	·30	2957	·41	·4041	·52	·5125	·63	·6209	·74	·7293	·85	·8378	·96	·9462
·08	·0788	·20	·1971	·31	·3055	·42	·4139	·53	·5224	·64	·6308	·75	·7392	·86	·8476	·97	·9560
·09	·0887	·21	·2070	·32	·3154	·43	·4238	·54	·5322	·65	·6406	·76	·7491	·87	·8575	·98	·9659
·10	·0986	·22	·2168	·33	·3252	·44	·4337	·55	·5421	·66	·6505	·77	·7589	·88	·8673	·99	·9757
·11	·1084	·23	·2267	·34	·3351	·45	·4435	·56	·5519	·67	·6603	·78	·7688	·89	·8772	·100	·9856
·12	·1183																

TABLE IV-E.

Sun's Longitude in days (360° = 365·25875648 days).

Degrees.	Days.	Degrees.	Days.	Minutes of degree.	Fraction of day.	Minutes of degree.	Fraction of day.	Minutes of degree.	Fraction of day.	Minutes of degree.	Fraction of day.	Minutes of degree.	Fraction of day.
1	1·0146076	40	40·5843064	1	·0169101	13	·2198316	25	·4227532	37	·6256747	49	·8285962
2	2·0292153	50	50·7303830	2	·0338202	14	·2367418	26	·4396633	38	·6425848	50	·8455063
3	3·0438230	60	60·8764596	3	·0507304	15	·2536519	27	·4565734	39	·6594949	51	·8624165
4	4·0584306	70	71·0225362	4	·0676405	16	·2705620	28	·4734835	40	·6764051	52	8793266
5	5·0730383	80	81·1686128	5	·0845506	17	·2874722	29	·4903937	41	·6933152	53	·8962367
6	6·0876460	90	91·3146894	6	·1014608	18	·3043823	30	·5073038	42	·7102253	54	·9131468
7	7·1022536	100	101·4607660	7	·1183709	19	·3212924	31	·5242139	43	·7271355	55	·9300570
8	8·1168613	200	202·9215320	8	·1352810	20	·3382025	32	·5411241	44	·7440456	56	·9469671
9	9·1314689	300	304·3822980	9	·1521911	21	·3551127	33	·5580342	45	·7609557	57	·9638772
10	10·1460766	360	365·2587565	10	·1691013	22	·3720228	34	·5749443	46	·7778658	58	·9807874
20	20·2921532			11	·1860114	23	·3889329	35	·5918544	47	·7947760	59	·9976975
30	30·4382298			12	·2029215	24	·4058430	36	·6087646	48	·8116861	60	1·0146076

TABLE IV-F.

Decimal parts of increase of ☾'s L. corresponding to decimal parts of a nakshatra.

	Degrees.		Degrees.		Degrees.		Degrees.		Degrees.		Degrees.		Degrees.		Degrees.		Degrees.
·01	·1333	·13	1·7333	·24	3·2000	·35	4·6666	·46	6·1333	·57	7·6000	·68	9·0666	·79	10·5333	·90	12·0000
·02	·2666	·14	1·8666	·25	3·3333	·36	4·8000	·47	6·2666	·58	7·7333	·69	9·2000	·80	10·6666	·91	12·1333
·03	·4000	·15	2·0000	·26	3·4666	·37	4·9333	·48	6·4000	·59	6·8666	·70	9·3333	·81	10·8000	·92	12·2666
·04	·5333	·16	2·1333	·27	3·6000	·38	5·0666	·49	6·5333	·60	8·0000	·71	9·4666	·82	10·9333	·93	12·4000
·05	·6666	·17	2·2666	·28	3·7333	·39	5·2000	·50	6·6666	·61	8·1333	·72	9·6000	·83	11·0666	·94	12·5333
·06	·8000	·18	2·4000	·29	3·8666	·40	5·3333	·51	6·8000	·63	8·2666	·73	9·7333	·84	11·2000	·95	12·6666
·07	·9333	·19	2·5333	·30	4·0000	·41	5·4666	·52	6·9333	·63	8·4000	·74	9·8666	·85	11·3333	·96	12·8000
·08	1·0666	·20	2·6666	·31	4·1333	·42	5·6000	·53	7·0666	·64	8·5333	·75	10·0000	·86	11·4666	·97	12·9333
·09	1·2000	·21	2·8000	·32	4·2666	·43	5·7333	·54	7·2000	·65	8·6666	·76	10·1333	·87	11·6000	·98	13·0666
·10	1·3333	·22	2·9333	·33	4·4000	·44	5·8666	·55	7·3333	·66	8·8000	·77	10·2666	·88	11·7333	·99	13·2000
·11	1·4666	·23	3·0666	·34	4·5333	·45	6·0000	·56	7·4666	·67	8·9333	·78	10·4000	·89	11·8666	1·00	13·3333
·12	1·6000																

TABLE IV-G.

Eqn. in minutes of a degree for ascertaining the latitude of a planet. (Paragraphs 238, 240 of Text.)

Degree.	Mar.	Mer.	Jup.	Ven.	Sat.	Degree.	Degree.	Mar.	Mer.	Jup.	Ven.	Sat.	Degree.	Degree.	Mar.	Mer.	Jup.	Ven.	Sat.	Degree.
0·00	5682	4708	4107	5940	3811	**360·00**	**75·00**	4547	3957	3676	4734	3556	**285·00**	**150·00**	1874	2426	2871	1786	3117	**210·00**
3·75	5678	4706	4107	5936	3810	**356·25**	**78·75**	4429	3886	3635	4617	3534	**281·25**	**153·75**	1743	2370	2847	1630	3104	**206·25**
7·50	5667	4699	4104	5925	3809	**352·50**	**82·50**	4327	3813	3593	4496	3509	**277·50**	**157·50**	1618	2319	2825	1481	3092	**202·50**
11·25	5651	4688	4099	5909	3806	**348·75**	**86·25**	4210	3738	3550	4371	3484	**273·75**	**161·25**	1503	2275	2807	1341	3083	**198·75**
15·00	5629	4674	4092	5886	3801	**345·00**	**90·00**	4090	3662	3506	4241	3459	**270·00**	**165·00**	1402	2238	2793	1213	3077	**195·00**
18·75	5601	4656	4083	5857	3795	**341·25**	**93·75**	3966	3584	3461	4107	3434	**266·25**	**168·75**	1347	2208	2782	1101	3072	**191·25**
22·50	5567	4634	4071	5822	3788	**337·50**	**97·50**	3839	3504	3417	3970	3409	**262·50**	**172·50**	1251	2186	2774	1013	3068	**187·50**
26·25	5528	4608	4056	5781	3779	**333·75**	**101·25**	3708	3423	3372	3828	3384	**258·75**	**176·25**	1209	2173	2770	956	3066	**183·75**
30·00	5484	4578	4040	5734	3769	**330·00**	**105·00**	3575	3341	3326	3684	3359	**255·00**	**180·00**	1194	2168	2769	936	3065	**180·00**
33·75	5431	4545	4021	5681	3758	**326·25**	**108·75**	3410	3259	3282	3536	3335	**251·25**							
37·50	5379	4507	3999	5622	3745	**322·50**	**112·50**	3303	3177	3238	3385	3313	**247·50**							
41·25	5318	4467	3976	5558	3731	**318·75**	**116·25**	3162	3095	3195	3231	3289	**243·75**							
45·00	5252	4423	3951	5487	3716	**315·00**	**120·00**	3019	3012	3152	3075	3265	**240·00**							
48·75	5181	4375	3922	5412	3699	**311·25**	**123·75**	2875	2930	3110	2916	3242	**236·25**							
52·50	5104	4324	3892	5331	3682	**307·50**	**127·50**	2730	2851	3070	2756	3221	**232·50**							
56·25	5023	4270	3860	5244	3663	**303·75**	**131·25**	2585	2773	3032	2594	3200	**228·75**							
60·00	4937	4213	3827	5152	3643	**300·00**	**135·00**	2440	2697	2995	2432	3181	**225·00**							
63·75	4846	4153	3791	5055	3623	**296·25**	**138·75**	2295	2624	2961	2269	3162	**221·25**							
67·50	4751	4090	3754	4953	3601	**292·50**	**142·50**	2152	2554	2928	2108	3146	**217·50**							
71·25	4651	4025	3716	4846	3579	**288·75**	**146·25**	2011	2487	2898	1945	3131	**213·75**							

In applying the above equations the following data, giving the inclination of the moon's orbit to the ecliptic and the greatest apparent latitude of the other planets have to be remembered:-

Inclination of ☾'s orbit 4° 30′, Sine 270′
Greatest latitude Mars 1° 30′ ,, 90′
,, ,, Mercury 2° 0′ ,, 120′
,, ,, Jupiter 1° 16′ ,, 78′
,, ,, Venus 2° 16′ ,, 138′
,, ,, Saturn 2° 10′ ,, 132′

TABLE IV-H.

Table of Hindu Sines. (Paragraphs 238—240 of Text.)

Degree.	Sine.	Degree.	Sine.	Degree.	Sine.	Degree.	Sine.	Degree.	Diff.	Degree.	Diff.	Degree.	Diff.	Degree.	Diff.
+		+		+		+		−	+	−	+	−	−	−	−
0·00	000	**48·75**	2585	**93·75**	3431	**138·75**	2267	**180·00**	...	**228·75**	154	**273·75**	7	**318·75**	164
3·75	225	**52·50**	2728	**97·50**	3409	**142·50**	2093	**183·75**	225	**232·50**	143	**277·50**	22	**322·50**	174
7·50	449	**56·25**	2859	**101·25**	3372	**146·25**	1910	**187·50**	224	**236·25**	131	**281·25**	37	**326·25**	183
11·25	671	**60·00**	2978	**105·00**	3321	**150·00**	1719	**191·25**	222	**240·00**	119	**285·00**	51	**330·00**	191
15·00	890	**63·75**	3084	**108·75**	3256	**153·75**	1520	**195·00**	219	**243·75**	106	**288·75**	65	**333·75**	199
18·75	1105	**67·50**	3177	**112·50**	3177	**157·50**	1315	**198·75**	215	**247·50**	93	**292·50**	79	**337·50**	205
22·50	1315	**71·25**	3256	**116·25**	3084	**161·25**	1105	**202·50**	210	**251·25**	79	**296·25**	93	**341·25**	210
26·25	1520	**75·00**	3321	**120·00**	2978	**165·00**	890	**206·25**	205	**255·00**	65	**300·00**	106	**345·00**	215
30·00	1719	**78·75**	3372	**123·75**	2859	**168·75**	671	**210·00**	199	**258·75**	51	**303·75**	119	**348·75**	219
33·75	1910	**82·50**	3409	**127·50**	2728	**172·50**	449	**213·75**	191	**262·50**	37	**307·50**	131	**352·50**	222
37·50	2093	**86·25**	3431	**131·25**	2585	**176·25**	225	**217·50**	183	**266·25**	22	**311·25**	143	**356·25**	224
41·25	2267	**90·00**	3438	**135·00**	2431	**180·00**	000	**221·25**	174	**270·00**	7	**315·00**	154	**360·00**	225
45·00	2431							**225·00**	164						

TABLE IV-J.

Decimal parts of 3·75 degrees [Example 3·2° = 85·3 of 3·75°].

0·1	·026666	**0·6**	·160000	**1·1**	·293333	**1·6**	·426666	**2·1**	·560000	**2·6**	·693333	**3·1**	·826666	**3·6**	·960000
0·2	·053333	**0·7**	·186666	**1·2**	·320000	**1·7**	·453333	**2·2**	·586666	**2·7**	·720000	**3·2**	·853333	**3·7**	·986666
0·3	·080000	**0·8**	·213333	**1·3**	·346666	**1·8**	·480000	**2·3**	·613333	**2·8**	·746666	**3·3**	·880000		
0·4	·106666	**0·9**	·240000	**1·4**	·373333	**1·9**	·506666	**2·4**	·640000	**2·9**	·773333	**3·4**	·906666		
0·5	·133333	**1·0**	·266666	**1·5**	·400000	**2·0**	·533333	**2·5**	·666666	**3·0**	·800000	**3·5**	·933333		

TABLE IV-K.

Mean place of Rahu at commencement of Kaliyuga and at Mesha Sankranti at the beginning of every century—B.C. 3201—A.D. 2000.

B.C.	Degrees.	Kaliyuga.	B.C.	Degrees.	Kaliyuga.	A.D.	Degrees.	Kaliyuga.
3102	201·6952	0	1601	304·9379	1501	100	155·8857	3201
3201	317·1635	—99	1501	169·1113	1601	200	20·0591	3301
						300	244·2325	3401
3101	182·3369	1	1401	33·2847	1701	400	108·4059	3501
3001	46·5103	101	1301	257·4581	1801	500	332 5793	3601
2901	270·6837	201	1201	121·6315	1901	600	196·7527	3701
2801	134·8571	301	1101	345·8049	2001	700	60·9261	3801
2701	359 0345	401	1001	209·9783	2101	800	285·0995	3901
						900	149·2729	4001
2601	223·2039	501	901	74·1517	2201	1000	13·4463	4101
2501	87·3773	601	801	298 3251	2301			
2401	311·5507	701	701	162·4985	2401	1100	237·6197	4201
2301	175·7241	801	601	26·6719	2501	1200	101·7931	4301
2201	39 8975	901	501	250·8453	2601	1300	325·9665	4401
						1400	190·1399	4501
2101	264·0709	1001	401	115·0187	2701	1500	54·3133	4601
2001	128·2443	1101	301	339·1921	2801	1600	278·4867	4701
1901	352·4177	1201	201	203·3655	2901	1700	142·6601	4801
1801	216·5911	1301	101	67·5379	3001	1800	6·8335	4901
1701	80·7645	1401	1	291·7123	3101	1900	231·0069	5001
						2000	95·1803	5101

N.B.—0 Kaliyuga, as a civil Solar year began on February 15·5792, B.C. 3102 whereas 0 Kaliyuga, as the starting point of Indian planetary longitudes, was February 17·75, B.C. 3102. The mean place of Rahu at the former moment was 201·6952° and at the latter 201·5802°.

Mean motion of Rahu in sidereal longitude (Indian) for odd years of a century and for multiples of 100 years.

Years.	Degrees.	Years.	Degrees.	Years.	Degrees.	Years.	Degrees.	Years.	Degrees.
1	19·3583	26	143·3149	51	267·2716	76	31·2282	200	271·6532
2	38·7165	27	162·6732	52	286·6298	77	50·5865	300	47·4798
3	58·0748	28	182 0314	53	305·9881	78	69·9447	400	183·3064
4	77·4331	29	201·3897	54	325·3464	79	89·3030	500	319·1330
5	96·7913	30	220·7480	55	344·7046	80	108·6613	600	94·9596
6	116·1496	31	240·1062	56	4·0629	81	128·0195	700	230·7862
7	135·5079	32	259·4645	57	23·4212	82	147 3778	800	6·6128
8	154·8661	33	278·8228	58	42·7794	83	166·7361	900	142·4394
9	174·2244	34	298·1810	59	62·1377	84	186·0943	1000	278·2660
10	193·5827	35	317·5393	60	81·4960	85	205·4526	2000	196·5320
11	212·9409	36	336·8976	61	100 8542	86	224 8109	3000	114·7980
12	232·2992	37	356·2558	62	120·2125	87	244·1691	4000	33·0640
13	251·6575	38	15·6141	63	139·5707	88	263·5274	5000	311·3300
14	271·0157	39	34·9724	64	158·9290	89	282·8857		
15	290·3740	40	54·3306	65	178·2873	90	302·2439		
16	309·7323	41	73 6889	66	197·6455	91	321·6021		
17	329·0905	42	93·0472	67	217·0038	92	340·9605		
18	348·4488	43	112·4054	68	236 3621	93	0·3187		
19	7·8070	44	131·7637	69	255·7203	94	19·6769		
20	27·1653	45	151·1220	70	275·0786	95	39·0352		
21	46·5236	46	170·4803	71	294·4369	96	58·3935		
22	65·8818	47	189·8385	72	313·7951	97	77 7518		
23	85·2401	48	209 1968	73	333·1534	98	97·1100		
24	104·5984	49	228·5550	74	352·5117	99	116 4683		
25	123·9566	50	247·9133	75	11·8699	100	135·8266		

N.B.—Rahu's motion is backward, not forward. Therefore, in deducing the place of Rahu for so many years or so many days (see below) subsequent to a given moment, the motion of Rahu for the required interval should be deducted from, (not added to), the given place. Thus: required to deduce from the place of Rahu at 0 Kaliyuga his place one day after Mesha Sankranti, A.D 1909. From the given place, 201·6952° deduct motion for 5010 years and one day, i.e., 5000 years (311·3300°) + 10 years (193·5827°) + 1 day (·0530°). Result 56·7295°.

Mean motion of Rahu for every 10 days and for fractions of a day.

Day.	Degrees.	Days.	Degrees.	Days.	Degrees.	Days.	Degrees.	Days.	Degrees.	Days.	Degrees.	Days.	Degrees.
·1	·0053	1	·0530	10	0·5300	100	5·2999	190	10·0698	280	14·8397	365	19·3446
·2	·0106	2	·1060	20	1·0600	110	5·8299	200	10·5998	290	15·3696	366	19·3979
·3	·0159	3	·1590	30	1·5900	120	6·3599	210	11·1297	300	15·8996		
·4	·0212	4	·2120	40	2·1199	130	6·8899	220	11·6597	310	16·4296		
·5	·0265	5	·2650	50	2·6499	140	7·4199	230	12·1897	320	16·9596		
·6	·0318	6	·3180	60	3·1799	150	7·9498	240	12·7197	330	17·4896		
·7	·0371	7	·3710	70	3·7 99	160	8·4798	250	13·2497	340	18·0196		
·8	·0424	8	·4240	80	4·2399	170	9·0098	260	13·7797	350	18·5496		
·9	·0477	9	·4770	90	4·7699	180	9·5398	270	14·3097	360	19·0796		

KEY TO TABLE IV-L.

[This key will enable the reader to find out readily where the eclipses of any given year are to be found in Table IV-L which is spread over 14 pages. The key is necessary because certain years, shown here in italics occur twice in Table IV-L. Thus the eclipses for the year A.D. 1256 are entered twice, once in the same lines with the eclipses of A.D. 26, and again in line with the eclipses of A.D. 44. As the same information is given in both places, it does not matter in which of the two it is looked up.]

A.D.	A.D.	A.D	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.
1	59	117	174	192	250	308	366	424	482	540
2	60	117	175	193	251	309	367	425	483	541
3	60	118	176	194	252	310	368	426	484	542
4	61	119	177	195	253	311	369	427	485	543
5	62	120	178	196	254	312	370	428	486	544
6	63	121	179	197	255	313	371	429	487	545
7	65	123	181	199	256	314	372	430	488	546
8	66	124	182	200	257	315	373	431	489	547
9	67	125	182	200	258	316	374	432	490	548
10	68	125	183	201	259	317	375	433	491	549
11	69	126	184	202	260	318	376	434	492	550
12	70	127	185	203	261	319	377	435	493	551
13	70	128	186	204	262	320	378	436	494	552
14	71	129	187	205	263	321	379	437	495	553
15	73	131	189	207	265	322	380	438	496	554
16	74	132	190	208	265	323	381	439	497	555
17	75	133	190	209	266	324	382	440	498	556
18	76	134	191	209	267	325	383	441	499	557
19	77	135	*192*	210	268	326	384	442	500	*558*
20	78	135	*193*	211	269	327	385	443	501	*559*
21	79	136	*194*	212	270	328	386	444	502	*560*
22	79	137	*195*	213	271	329	387	445	503	*561*
23	80	138	*196*	214	272	330	388	446	504	*562*
24	81	139	*197*	215	273	331	389	447	505	*563*
25	82	140	*198*	216	274	332	390	448	506	*564*
26	84	142	*200*	218	275	333	391	449	507	*565*
27	85	143	*200*	219	276	334	392	450	508	*566*
28	86	144	*201*	219	277	335	393	451	509	*567*
29	87	144	*202*	220	278	336	394	452	510	*568*
30	88	145	*203*	221	279	337	395	453	511	*569*
31	89	146	*204*	222	280	338	396	454	512	*570*
32	89	147	*205*	223	281	339	397	455	513	*571*
33	90	148	*206*	224	282	340	398	456	514	*572*
34	92	150	*208*	226	284	341	399	457	515	*573*
35	93	151	*209*	227	284	342	400	458	516	*574*
36	94	152	*209*	228	285	343	401	459	517	*575*
37	95	153	*210*	228	286	344	402	460	518	*576*
38	96	154	*211*	229	287	345	403	461	519	*577*
39	97	154	*213*	230	288	346	404	462	520	*578*
40	98	155	*213*	231	289	347	405	463	521	*579*
41	98	156	*214*	232	290	348	406	464	522	*580*
42	99	157	*215*	233	291	349	407	465	523	*581*
43	100	158	*216*	234	292	350	408	466	524	*582*
44	102	160	*218*	236	293	351	409	467	525	*583*
45	103	161	*219*	237	294	352	410	468	526	*584*
46	104	162	*219*	237	295	353	411	469	527	*585*
47	105	163	*220*	238	296	354	412	470	528	*586*
48	106	163	*221*	239	297	355	413	471	529	*587*
49	107	164	*222*	240	298	356	414	472	530	*588*
50	107	165	*223*	241	299	357	415	473	531	*589*
51	108	166	*224*	242	300	358	416	474	532	*590*
52	109	167	*225*	243	301	359	417	475	533	*591*
53	111	169	*227*	245	303	360	418	476	534	*592*
54	112	170	*228*	246	303	361	419	477	535	*593*
55	113	171	*228*	247	304	362	420	478	536	*594*
56	114	172	*229*	247	305	363	421	479	537	*595*
57	115	172	*230*	248	306	364	422	480	538	*596*
58	116	173	*231*	249	307	365	423	481	539	*597*

	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.
1	558	616	674	731	789	847	865	923	981
2	559	617	674	732	790	848	866	924	982
3	560	618	675	733	791	849	867	925	983
4	561	619	676	734	792	850	868	926	984
5	562	619	677	735	793	851	869	927	985
6	563	620	678	736	794	852	870	928	986
7	564	622	680	738	795	853	871	929	987
8	565	623	681	739	796	854	872	930	988
9	566	624	682	739	797	855	873	931	989
10	567	625	683	740	798	856	874	932	990
11	568	626	683	741	799	857	875	933	991
12	569	627	684	742	800	858	876	934	992
13	570	628	685	743	801	859	877	935	993
14	571	628	686	744	802	860	878	936	994
15	572	630	688	746	804.	861	879	937	995
16	573	631	689	747	804	862	880	938	996
17	574	632	690	748	805	863	881	939	997
18	575	633	691	749	806	864	882	940	998
19	576	634	692	749	807	*865*	883	941	999
20	577	635	693	750	808	*866*	884	942	1000
21	578	636	693	751	809	*867*	885	943	1001
22	579	637	694	752	810	*868*	886	944	1002
23	580	638	695	753	811	*869*	887	945	1003
24	581	638	696	754	812	*870*	888	946	1004
25	582	639	697	755	813	*871*	889	947	1005
26	583	641	699	757	814	*872*	890	948	1006
27	584	642	700	758	815	*873*	891	949	1007
28	585	643	701	758	816	*874*	892	950	1008
29	586	644	702	759	817	*875*	893	951	1009
30	587	645	703	760	818	*876*	894	952	1010
31	588	646	703	761	819	*877*	895	953	1011
32	589	646	704	762	820	*878*	896	954	1012
33	590	647	705	763	821	*879*	897	955	1013
34	591	649	707	765	823	*880*	898	956	1014
35	592	650	708	766	823	*881*	899	957	1015
36	593	651	709	767	824	*882*	900	958	1016
37	594	652	710	768	825	*883*	901	959	1017
38	595	653	711	768	826	*884*	902	960	1018
39	596	654	711	769	827	*885*	903	961	1019
40	597	655	712	770	828	*886*	904	962	1020
41	598	656	713	771	829	*887*	905	963	1021
42	599	657	714	772	830	*888*	906	964	1022
43	600	657	715	773	831	*889*	907	965	1023
44	601	659	717	775	833	*890*	908	966	1024
45	602	660	718	776	833	*891*	909	967	1025
46	603	661	719	776	834	*892*	910	968	1026
47	604	662	720	777	835	*893*	911	969	1027
48	605	663	721	778	836	*894*	912	970	1028
49	606	664	721	779	837	*895*	913	971	1029
50	607	665	722	780	838	*896*	914	972	1030
51	608	665	723	781	839	*897*	915	973	1031
52	609	666	724	782	840	*898*	916	974	1032
53	610	668	726	784	842	*899*	917	975	1033
54	611	669	727	785	842	*900*	918	976	1034
55	612	670	728	786	843	*901*	919	977	1035
56	613	671	729	787	844	*902*	920	978	1036
57	614	672	730	787	845	*903*	921	979	1037
58	615	673	730	788	846	*904*	922	980	1038

KEY TO TABLE IV-L—cont.

	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.
1	1039	1097	1155	1213	1231	1288	1346	1404	1462	1520
2	1040	1098	1156	1214	1232	1289	1347	1405	1463	1521
3	1041	1099	1157	1214	1232	1290	1348	1406	1464	1522
4	1042	1100	1158	1215	1233	1291	1349	1407	1465	1523
5	1043	1101	1158	1216	1234	1292	1350	1408	1466	1524
6	1044	1102	1159	1217	1235	1293	1351	1409	1467	1525
7	1045	1103	1161	1219	1237	1295	1353	1410	1468	1526
8	1046	1104	1162	1220	1238	1296	1353	1411	1469	1527
9	1047	1105	1163	1221	1239	1297	1354	1412	1470	1528
10	1048	1106	1164	1222	1240	1297	1355	1413	1471	1529
11	1049	1107	1165	1223	1241	1298	1356	1414	1472	1530
12	1050	1108	1166	1223	1242	1299	1357	1415	1473	1531
13	1051	1109	1167	1224	1242	1300	1358	1416	1474	1532
14	1052	1110	1167	1225	1243	1301	1359	1417	1475	1533
15	1053	1111	1169	1227	1245	1303	1361	1418	1476	1534
16	1054	1112	1170	1228	1246	1304	1362	1419	1477	1535
17	1055	1113	1171	1229	1247	1305	1362	1420	1478	1536
18	1056	1114	1172	1230	1248	1306	1363	1421	1479	1537
19	1057	1115	1173	*1231*	1249	1307	1364	1422	1480	*1538*
20	1058	1116	1174	*1232*	1250	1307	1365	1423	1481	*1539*
21	1059	1117	1175	*1232*	1250	1308	1366	1424	1482	*1540*
22	1060	1118	1176	*1233*	1251	1309	1367	1425	1483	*1541*
23	1061	1119	1177	*1234*	1252	1310	1368	1426	1484	*1542*
24	1062	1120	1177	*1235*	1253	1311	1369	1427	1485	*1543*
25	1063	1121	1178	*1236*	1254	1312	1370	1428	1486	*1544*
26	1064	1122	1180	*1238*	1256	1314	1372	1429	1487	*1545*
27	1065	1123	1181	*1239*	1257	1315	1372	1430	1488	*1546*
28	1066	1124	1182	*1240*	1258	1315	1373	1431	1489	*1547*
29	1067	1125	1183	*1241*	1259	1316	1374	1432	1490	*1548*
30	1068	1126	1184	*1242*	1260	1317	1375	1433	1491	*1549*
31	1069	1127	1185	*1242*	1260	1318	1376	1434	1492	*1550*
32	1070	1128	1185	*1243*	1261	1319	1377	1435	1493	*1551*
33	1071	1129	1186	*1244*	1262	1320	1378	1436	1494	*1552*
34	1072	1130	1188	*1245*	1264	1322	1380	1437	1495	*1553*
35	1073	1131	1189	*1246*	1265	1323	1380	1438	1496	*1554*
36	1074	1132	1190	*1247*	1266	1324	1381	1439	1497	*1555*
37	1075	1133	1191	*1248*	1267	1325	1382	1440	1498	*1556*
38	1076	1134	1192	*1249*	1268	1325	1383	1441	1499	*1557*
39	1077	1135	1193	*1250*	1269	1326	1384	1442	1500	*1558*
40	1078	1136	1194	*1251*	1269	1327	1385	1443	1501	*1559*
41	1079	1137	1195	*1252*	1270	1328	1386	1444	1502	*1560*
42	1080	1138	1196	*1253*	1271	1329	1387	1445	1503	*1561*
43	1081	1139	1196	*1254*	1272	1330	1388	1446	1504	*1562*
44	1082	1140	1198	*1256*	1274	1332	1390	1447	1505	*1563*
45	1083	1141	1199	*1257*	1275	1333	1390	1448	1506	*1564*
46	1084	1142	1200	*1258*	1276	1334	1391	1449	1507	*1565*
47	1085	1143	1201	*1259*	1277	1334	1392	1450	1508	*1566*
48	1086	1144	1202	*1260*	1278	1335	1393	1451	1509	*1567*
49	1087	1145	1203	*1260*	1279	1336	1394	1452	1510	*1568*
50	1088	1146	1204	*1261*	1279	1337	1395	1453	1511	*1569*
51	1089	1147	1204	*1262*	1280	1338	1396	1454	1512	*1570*
52	1090	1148	1205	*1263*	1281	1339	1397	1455	1513	*1571*
53	1091	1149	1207	*1265*	1283	1341	1399	1456	1514	*1572*
54	1092	1150	1208	*1266*	1284	1342	1399	1457	1515	*1573*
55	1093	1151	1209	*1267*	1285	1343	1400	1458	1516	*1574*
56	1094	1152	1210	*1268*	1286	1344	1401	1459	1517	*1575*
57	1095	1153	1211	*1269*	1287	1344	1402	1460	1518	*1576*
58	1096	1154	1212	*1269*	1288	1345	1403	1461	1519	*1577*

	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.
1	1538	1596	1654	1712	1770	1827	1885	1903	1961
2	1539	1597	1655	1713	1771	1828	1886	1904	1962
3	1540	1598	1656	1714	1771	1829	1887	1905	1963
4	1541	1599	1657	1715	1772	1830	1888	1906	1964
5	1542	1600	1658	1716	1773	1831	1889	1907	1965
6	1543	1601	1659	1717	1774	1832	1890	1908	1966
7	1544	1602	1660	1718	1776	1834	1892	1910	1967
8	1545	1603	1661	1719	1777	1835	1893	1911	1968
9	1546	1604	1662	1720	1778	1836	1893	1911	1969
10	1547	1605	1663	1721	1779	1836	1894	1912	1970
11	1548	1606	1664	1722	1780	1837	1895	1913	1971
12	1549	1607	1665	1723	1781	1838	1896	1914	1972
13	1550	1608	1666	1724	1781	1830	1897	1915	1973
14	1551	1609	1667	1725	1782	1840	1898	1916	1974
15	1552	1610	1668	1726	1784	1842	1900	1918	1976
16	1553	1611	1669	1727	1785	1843	1901	1919	1976
17	1554	1612	1670	1728	1786	1844	1901	1920	1977
18	1555	1613	1671	1729	1787	1845	1902	1920	1978
19	1556	1614	1672	1730	1788	1846	*1903*	1921	1979
20	1557	1615	1673	1731	1789	1846	*1904*	1922	1980
21	1558	1616	1674	1732	1790	1847	*1905*	1923	1981
22	1559	1617	1675	1733	1790	1848	*1906*	1924	1982
23	1560	1618	1676	1734	1791	1849	*1907*	1925	1983
24	1561	1619	1677	1735	1792	1850	*1908*	1926	1984
25	1562	1620	1678	1736	1793	1851	*1909*	1927	1985
26	1563	1621	1679	1737	1795	1853	*1911*	1929	1986
27	1564	1622	1680	1738	1796	1854	*1911*	1930	1987
28	1565	1623	1681	1739	1797	1855	*1912*	1930	1988
29	1566	1624	1682	1740	1798	1855	*1913*	1931	1989
30	1567	1625	1683	1741	1799	1856	*1914*	1932	1990
31	1568	1626	1684	1742	1799	1857	*1915*	1933	1991
32	1569	1627	1685	1743	1800	1858	*1916*	1934	1992
33	1570	1628	1686	1744	1801	1859	*1917*	1935	1993
34	1571	1629	1687	1745	1803	1861	*1919*	1937	1995
35	1572	1630	1688	1746	1804	1862	*1920*	1938	1995
36	1573	1631	1689	1747	1805	1863	*1920*	1939	1996
37	1574	1632	1690	1748	1806	1864	*1921*	1939	1997
38	1575	1633	1691	1749	1807	1864	*1922*	1940	1998
39	1576	1634	1692	1750	1808	1865	*1923*	1941	1999
40	1577	1635	1693	1751	1809	1866	*1924*	1942	2000
41	1578	1636	1694	1752	1809	1867	*1925*	1943	2001
42	1579	1637	1695	1753	1810	1868	*1926*	1944	2002
43	1580	1638	1696	1754	1811	1869	*1927*	1945	2003
44	1581	1639	1697	1755	1813	1871	*1929*	1947	2004
45	1582	1640	1698	1756	1814	1872	*1930*	1948	2005
46	1583	1641	1699	1757	1815	1873	*1930*	1948	2006
47	1584	1642	1700	1758	1816	1874	*1931*	1949	2007
48	1585	1643	1701	1759	1817	1874	*1932*	1950	2008
49	1586	1644	1702	1760	1818	1875	*1933*	1951	2009
50	1587	1645	1703	1761	1818	1876	*1934*	1952	2010
51	1588	1646	1704	1762	1819	1877	*1935*	1953	2011
52	1589	1647	1705	1763	1820	1878	*1936*	1954	2012
53	1590	1648	1706	1764	1822	1880	*1938*	1956	2014
54	1591	1649	1707	1765	1823	1881	*1939*	1957	2014
55	1592	1650	1708	1766	1824	1882	*1939*	1958	2015
56	1593	1651	1709	1767	1825	1883	*1940*	1958	2016
57	1594	1652	1710	1768	1826	1883	*1941*	1959	2017
58	1595	1653	1711	1769	1827	1884	*1942*	1960	2018

TABLE IV-L.

Cycles of recurrence of Eclipses—Solar and Lunar.

N.B.—(1) Lines containing solar eclipses are marked N and those containing lunar eclipses are marked F; in each A.D. year the days when eclipses occurred are indicated in plain type, in italic or by starred figures. All these figures refer to days of the Indian Solar year and may be rendered into days of the English calendar with the help of Table IV-M.
(2) Starred figures indicate solar eclipses visible in India.
(3) *Italics* mean that an eclipse on that occasion is not recorded *in L'Art de Venfier les dates* though it may have occurred in remote parts of the world and as such may find mention in Oppolzer—see pages 135—150 of Text.

		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
	0	**57** 324·1	**115** 283·0	**173** 241·9	**191** 252·6	**249** 211·5	**307** 170·4	**365** 129·3	**423** 88·2	**481** 47·1		**539** 6·0	**557** 16·7	**614** 340·8	**672** 299·7	**730** 258·6	**788** 217·5	**846** 176·4	**864** 187·1	**922** 146·0	**980** 104·9
Cyclic variation; add algebraically to fig. in col. 2.		−·08	−·17	−·25	+·22	+·14	+·05	−·03	−·12	−·20		−·29	+·18	+·10	+·01	−·07	−·16	−·24	+·23	+·15	+·06
		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
Sun from node.	Successive differences.	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1		+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1
(1) (2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
	A.D. 1	**59**	**117**	**174**	**192**	**250**	**308**	**366**	**424**	**482**		**540**	**558**	**616**	**674**	**731**	**789**	**847**	**865**	**923**	**981**
N. 183°·41	87·7*	46·6*	5·5*	329·6	340·3*	289·2	258·1*	217·0	175·9	134·8	N.	93·7	104·4	63·3*	22 1*	346·3	305·2*	264·1	274·8	233·7*	192·6
F. 168°·07	102·4	*61·3*	*20·2*	*−341·3*	*−355·0*	*−313·9*	−272·8	−231·7	190·6	149·5	F.	108·4	119·1	78·0	*36·9*	*−361·1*	*−320·0*	*−278·9*	*−289·6*	*−248·5*	207·4
F. 14°·72	*250·1*	*209·0*	*167·9*	*126 8*	*137·5*	*96·4*	*55·3*	*14·2*	*338·3*	*297·2*	F.	*256·1*	*266·8*	*225·7*	*184·6*	*143·5*	*102·4*	*61·3*	*72·0*	*30·9*	*−355·0*
N. 359°·38	*−264·9*	−223·8*	*182·7*	141·6*	*152·3*	111·2	70·1	29·0	−353·1	−312·0	N.	270·9	*−281·6*	−240·5*	199·4*	158·3*	*117·2*	76·1*	86·8*	45·7	4·6*
	A.D. 2	**60**		**175**	**193**	**251**	**309**	**367**	**425**	**483**		**541**	**559**	**617**		**732**	**790**	**848**	**866**	**924**	**982**
F. 190°·70	62·0	20·9	345·1	304·0	314·7	*273·6*	232·5	*191·4*	*150·3*	109·2	F.	68·0	*78·8*	37·7	−361·7	320·6	279 5	238·4	249·1	*209·0*	*166·9*
N. 175°·36	*76·8*	*35·7*	*359·9*	−318·8*	*−329·5*	−288·4*	*−247·3*	206·2*	165·1*	*124·0*	N.	82·9*	93·6*	52·5	*11·2*	*−335·4*	−294·3*	*−253·2*	−263·9*	*−222·8*	181·7*
F. 6°·67	239·2	198·1	157·0	115·9	126·6	85·5	44·4	3·3	327·1	286·3	F.	215·2	255·9	214·8	173·7	132·6	91·5	50·4	61·1	20·0	344·2
N. 351°·34	−254·0*	212·9*	171·8*	130·7	141·4	100·3*	59·2	18·1*	− 342·2	−301·1*	N.	−260·0	270·7	229·6*	188·3	147·2*	106·1*	65·0	75 7*	34·6	−358·8
	A.D. 3		**118**	**176**	**194**	**252**	**310**	**368**	**426**	**484**		**542**	**560**	**618**	**675**	**733**	**791**	**849**	**867**	**925**	**983**
N. 197°·98	*36·4*	−360·5	*319·4*	*278·4*	*289·0*	*247·9*	*206·8*	*165·7*	*124·6*	*83·5*	N.	*42·4*	*53,1*	12·0*	*336·1*	295·0	*253·9*	*212·8*	*223·5*	*182·4*	*141·3*
F. 182°·65	51·1	10·1	334·2	293·1	303·8	262·7	221·6	180·5	139·4	98·3	F.	57·2	67·9	26·8	−350·9	309·8	268·7	227·6	238·3	197·2	156·1
N. 167°·32	*65·9*	*24·8*	*−348·9*	*−307·8*	*−318·5*	*−277·4*	*−236·3**	*195·3*	154·1*	*103·0*	N.	*77·9*	*82·6*	*41·5*	*0·4*	*−324·5*	*−283·4*	*−242·3*	*−253·0*	*211·9*	*170·8*
N. 13°·96	*313·6*	*172·5*	*131·4*	*90·3*	*101·0*	*59·9*	*18·8*	*342·9*	*301·8*	*260·7*	N.	*219·6*	*230·3*	*189·2*	*148·1*	*107·0*	*65·9*	*24·8*	*35·5*	*−359·6*	*318·5*
F. 358°·63	228·3	187·3	147·2	105·1	115 8	74·7	33·6	−357·7	316·6	275·5	F.	234·4	245·1	204·0	162·9	121·8	80·7	39·6	50·3	9·2	333·3
N. 343°·29	*−243·1*	202·0	*161·9*	119·8	130·5	90·4	*48·3*	*7·2*	*−331·3*	*−290·2*	N.	*−249·1*	−259·8*	−218·7*	177·6	136·5	95·4	*54·3*	*65·0*	*23·9*	*−348·0*
	A.D. 4	**61**	**119**	**177**	**195**	**253**	**311**	**369**	**427**	**485**		**543**	**561**	**619**	**676**	**734**	**792**	**850**	**868**	**926**	**984**
N. 189°·94	25·5	−349·6	308·5*	267·4	278·1	*237·0*	*195·9*	*154·8*	113·7*	72·6	N.	31·5*	42·2*	1·1	*325·2*	284·1*	243·0*	201·9*	212·6	171·5	130·4*
F. 174°·60	40·2	364·3	−323·2	−282·1	−292·8	−251·7	−210·6	169·5	128·4	87·3	F.	46·2	56·9	15·8	−339·9	−298·8	−257·7	−216·6	−227·3	186·2	145·1
N. 5°·92	*203·7*	*161·6*	*120·5*	*79·4*	*90·1*	49·0*	*7·9*	*332·0*	*290·9*	249·8*	N.	208·7*	*219·4*	*178·3*	*137·2*	96·1*	*55·0*	13·9*	*24·6*	348·7*	*307·6*
F. 350°·58	−217·4	176·4	135·3	94·2	104·9	63·8	22·7	*−346·8*	−305·7	−264·6	F.	−223·5	−234·2	193·1	152·0	110·9	69·8	28·7	39·4	−363·5	−322·4
	A.D. 5	**62**	**120**	**178**	**196**	**254**	**312**	**370**	**428**	**486**		**544**	**562**		**677**	**735**	**793**	**851**	**869**	**927**	**985**
N. 181°·89	14·6	338·7*	*297·6*	256·5*	267·2	226·1	185·0	143·9*	*102·8*	61·7	N.	20·6*	31·3*	−355·4*	314·3*	273·2*	232·1	*191·0*	201·7*	160·6*	119·5
F. 166°·56	*29·3*	*−353·5*	*−312·4*	*−271·3*	*−282·0*	−240·9	*199·8*	158·7	117·6	*76·5*	F.	*35·4*	*46·1*	*5·0*	*−339·1*	*−287·0*	*−246·9*	*205·8*	*216·5*	175·4	134·3
F. 13°·21	*177·0*	*135·9*	*94·8*	*53·7*	*64·4*	*23·3*	347·4	*306·3*	*265·2*	*224·1*	F.	*183·0*	*193·7*	*152·6*	*111·5*	*70·4*	*29·3*	*−353·4*	*−364·1*	*323·0*	*281·9*
N. 357°·87	191·8*	*150·7*	109·6*	68·5*	79·2*	38·1	*−362·2*	*−321·1**	*−280·0*	*−239·9**	N.	*197·8*	*−208·5**	167·4*	126·2*	*85·1*	44·1*	3·1	*13·8*	*−337·7**	*−296·6**
F. 189°·18	−354·2	313·1	272·0	230·9	241·6	200·5	*159·4*	118·3	77·2	36·1	F.	−360·2	5·8	329·8	288·7	247·6	206·5	*165·4*	*176·1*	135·0	93·9
	A.D. 6	**63**	**121**	**179**	**197**	**255**	**313**	**371**	**429**	**487**		**545**	**563**	**620**	**678**	**736**	**794**	**852**	**870**	**928**	**986**
N. 173°·85	*5·7*	*327·8*	*−286·7*	*−245·6*	*−256·3*	*−215·2*	174·1*	*133·0*	*91·9*	50·8*	N.	9·7*	*20·4*	*−344·5*	*−303·4*	*−262·3*	*−221·2*	180·1	*190·8*	149·7*	*108·6*	
F. 5°·16	166·1	125·0	83·9	42·8	53·5	12·4	336·5	295·4	254·3	213·2	F.	172·1	182·8	141·7	100·6	59·5	18·4	342·5	−353·2	312·1	271·0
N. 349°·83	180·9*	139·8*	98·7	57·6	68·3	27·2	−351·3*	−310·2	−269·1*	−228·0*	N.	186·9*	197·6*	156·5	115·4*	74·3	33·2	−357·3	2·8	−326·9	*−285·8*
N. 196°·47	328·6	*287·5*	*246·4*	*205·3*	*216·0*	*174·9*	*133·8*	*92·7*	*51·6*	10·5*	N.	334·6	345·3	304·2	*263·1*	222·0*	*180·9*	*139·8*	*150·5*	*109·4*	(America.) *68·3*
F. 181°·14	343·3	302·3	261·2	220·1	230·8	189·7	148·6	107·5	66·4	25·3	F.	349·4	−360·1	319·0	277·9	236·8	195·7	154·6	165·3	124·2	83·1
	166°·81	*−358·1*	*−317·0*	*−275·9*	*−284·8*	*−245·5*	*204·4*	*163·3*	122·2*	*81·1*		*−364·1*	*9·6*	*−333·7*	*−292·6*	*−251·5*	*210·4*	168·3*	*180·0*	*138·9*	*97·8*

TABLE IV-L—cont.

Cycles of recurrence of Eclipses—Solar and Lunar—cont.

	0	Yrs. Dys. 1038 63·8	Yrs. Dys. 1096 22·7	Yrs. Dys. 1153 346·8	Yrs. Dys. 1211 205·7	Yrs. Dys. 1229 316·4	Yrs. Dys. 1287 275·3	Yrs. Dys. 1345 234·1	Yrs. Dys. 1403 193·1	Yrs. Dys. 1461 152·0
Cyclic variation; add algebraically to fig. in col. 2.		−·02	−·11	+·19	−·28	+·19	+·11	+·02	−·06	−·15
Sun from node.	Successive differences.	Yrs. Dys. +58 −41·1 (23)	Yrs. Dys. +58 −41·1 (24)	Yrs. Dys. +58 −41·1 (25)	Yrs. Dys. +58 −41·1 (26)	Yrs. Dys. +18 +10·7 (27)	Yrs. Dys. +58 −41·1 (28)	Yrs. Dys. +58 −41·1 (29)	Yrs. Dys. +58 −41·1 (30)	Yrs. Dys. +58 −41·1 (31)
	A.D. 1	**1039**	**1097**	**1155**	**1213**	**1231**	**1288**	**1346**	**1404**	**1462**
N.	183°·41	87·7°	151·5	*110·4*	69·3°	28·2°	38·9	−363·0°	321·8°	280·7°	239·6°
F.	168°·07	102·2	166·3	125·2	84·1	*43·0*	*53·7*	*12·6*	−*336·6*	−*295·5*	*254·4*
F.	14°·72	*250·1*	*313·9*	*273·8*	*231·7*	*190·6*	*201·3*	*160·2*	*119·0*	*77·9*	*36·8*
N.	359°·38	−*264·9*	−328·7°	−287·6°	−246·5°	*205·4*	216·1	175·0°	133·8°	92·7	51·6°
	A.D. 2	**1040**	**1098**	**1156**	**1214**	**1232**	**1289**	**1347**	**1405**	**1463**
F.	190°·70	62·0	*125·8*	*84·7*	43·6	2·5	13·2	337·4	296·2	255·0	*213·9*
N.	175°·36	*76·8*	*140·6*	99·5	58·4°	*17·3*	28·0°	*352·2*	− *310·9*	−*269·8*	−228·7°
F.	6°·67	239·2	303·1	262·0	220·9	179·8	190·5	149·2	108·0	66·9	25·8
N.	351°·34	−254·0°	−*317·2*	−276·6	− *235·5*	194·4°	205·1	164·0°	122·8°	81·7°	40·6°
	A.D. 3	**1041**	**1099**	**1157**			**1290**	**1348**	**1406**	**1464**
N.	197°·99	*36·4*	*100·2*	*59·1*	18·1	342·3	−*358·9*	*311·8*	*270·8*	*229·7*	*188·6*
F.	182°·65	51·1	115·0	73·9	32·8	−356·9	2·3	326·4	285·3	244·2	204·1
N.	167°·32	*65·9*	*129·7*	*88·6*	*47·5*	*6·4*	*17·1*	−*341·2*	−*300·0*	− *258·9*	−*217·8*
N.	13°·96	*213·6*	*277·4*	*236·3*	*195·2*	*154·1*	*164·8*	*123·7*	*82·6*	*41.5*	*0·4*
F.	358°·63	228·3	292·2	251·1	210·0	168·9	179·6	138·5	97·4	56.3	15·2
N.	343°·29	−*243·1*	−*306·9*	−*265·8*	−224·7	*183·6*	194·3°	153·2°	*112·1*	71·0°	*29·9*
	A.D. 4	**1042**	**1100**	**1158**	**1215**	**1233**	**1291**	**1349**	**1407**	**1465**
N.	189°·94	25·5	89·3°	48·2°	*7·1*	331·2°	341·9	300·8°	259·7	218·6	177·5
F.	174°·60	40·2	104·0	62·9	21·8	−345·9	−356·6	− 315·5	−274·4	−233·3	192·2
N.	5°·92	*203·7*	266·5°	*225·4*	*184·3*	*143·2*	153·9°	*112·8*	71·4	30·6°	−·354·7
F.	350°·58	−217·4	−281·3	−204·2	169·1	158·0	168·7	127·5	86·5	45·4	*4·3*
	A.D. 5	**1043**	**1101**		**1216**	**1234**	**1292**	**1350**	**1408**	**1466**
N.	181°·89	14·6	78·4°	37·3°	−*361·4*	320·3	331·0°	289·9°	248·8°	207·7°	*166·6*
F.	166°·56	*129·3*	*93·2*	*52·1*	*11·0*	−*335·1*	−*345·8*	−*304·7*	− *265·6*	−*222·5*	181·4
F.	13°·21	*177·0*	*240·8*	*199·7*	*158·6*	*117·5*	*128·2*	*87·1*	*45·9*	4·8	*368·9*
N.	357°·87	191·8°	− 255·5°	− 214·4°	*173·3*	132·2°	142·9°	101·8	*60·7*	19·6	−543·7°
F.	189°·18	354·2	52·8	11·7	335·8	294·7	305·4	264·3	223·2	*182·1*	141·0
	A.D. 6	**1044**	**1102**	**1159**	**1217**	**1235**	**1293**	**1351**	**1409**	**1467**
N.	173°·85	*5·7*	*67·5°*	26·4°	− *350·5*	− 309·4°	-*320·1*	−279·0°	−*237·9*	196·8°	*155·7*
F.	5°·16	166·1	229·9	188·8	147·7	106·6	117·3	76·2	35·1	−359·2	318·1
N.	349°·88	180·9°	−244·7°	*203·6*	162·5°	121·4°	132·1°	91·0°	49·9	8·8	−*332·9*
			(America) 1160		1218	1236		1294	1352		(Penumbral)
N.	196°·47	328·6	27·2°	−351·3°	310·2°	269·1	*279·8*	*238·7*	*197·6*	*156·5*	*115·4*
F.	181°·14	343·8	42·0	0·9	325·0	283·9	294·6	253·5	212·4	171·3	130·2
N.	166°·81	-*358·1*	*56·7*	*15·6*	− *339·7*	− *298·6*	−*309·3*	−*268·2*	− *227·1*	*186·0*	*144·9*

	0	Yrs. Dys. 1519 110·9	Yrs. Dys. 1537 121·8	Yrs. Dys. 1595 80·5	Yrs. Dys. 1653 39·4	Yrs. Dys. 1710 363·6	Yrs. Dys. 1768 322·4	Yrs. Dys. 1826 281·3	Yrs. Dys. 1884 240·2	Yrs. Dys. 1902 250·9	Yrs. Dys. 1960 209·8
Cyclic variation; add algebraically to fig. in col. 2.		−·23	+·24	+·16	+·07	+·00	−·08	−·17	−·25	+·22	+·14
Sun from node.	Successive differences.	Yrs. Dys. +58 −41·1 (32)	Yrs. Dys. +18 +10·7 (33)	Yrs. Dys. +58 −41·1 (34)	Yrs. Dys. +58 −41·1 (35)	Yrs. Dys. +58 −41·1 (36)	Yrs. Dys. +58 −41·1 (37)	Yrs. Dys. +58 −41·1 (38)	Yrs. Dys. +58 −41·1 (39)	Yrs. Dys. +18 +10·7 (40)	Yrs. Dys. +58 −41·1 (41)
	A.D. 1	**1520**	**1538**	**1596**	**1654**	**1712**	**1770**	**1828**	**1885**	**1903**	**1961**
N.	183°·41	198·5	209·2	168·1°	127·0°	85·9°	44·8°	3·7°	*337·8*	338·5°	297·4
F.	168°·07	213·3	−224·0	182·9	141·8	100·7	*59·6*	*18·5*	−*342·6*	−*383·7*	− *342·8*
F.	14°·72	−*360·9*	*6·4*	*350·5*	*289·4*	*248·3*	*207·2*	*166·1*	*125·0*	*135·7*	*94·6*
N.	359°·38	10·5°	21·2	−345·3°	−304·2°	−263·1°	−222·0°	180·9°	138·8	*150·5*	109·4
	A.D. 2	**1521**	**1539**	**1597**	**1655**	**1713**	**1771**		**1886**	**1904**	**1962**
F.	190°·70	*172·8*	*183·5*	*142·4*	*101·3*	60·2	19·1	343·3	302·2	312·9	*271·8*
N.	175°·36	*187·6*	198·3°	*157·2*	116·1°	*75·0*	*33·9*	−*358·1*	−*317·0*	−*327·7*	−286·6
F.	6°·67	350·0	−360·7	319·6	278·5	237·4	196·3	155·2	114·0	124·7	83·6
N.	351°·34	−364·8	10·2°	−334·4	−293·3	−252·2	*211·1*	170·0°	128·8°	139·5	98·4
	A.D. 3	**1522**	**1540**	**1598**	**1656**	**1714**		**1829**	**1887**	**1905**	**1963**
N.	197°·99	*147·5*	*158·2*	*117·1*	*76·0*	*34·9*	−355·1	314·0	*276·9*	*287·6*	*246·5*
F.	182°·65	162·0	172·7	131·6	90·5	49·4	8·3	332·4	291·3	302·0	260·9
N.	167°·32	*176·7*	*187·4*	*146·3*	*105·2*	*64·1*	*23·0*	−*347·1*	−*306·0*	−*316·7*	− *275·6*
N.	13°·96	*324·5*	*335·2*	*294·1*	*253·0*	*211·9*	*170·8*	*129·7*	*88·6*	*99·3*	*58·2*
F.	359°·63	339·3	350·0	308·9	267·8	226·7	185·6	144·5	103·4	114·1	73·0
N.	343°·29	− *354·0*	−*364·7*	−323·6°	− *282·5*	−241·4	200·3°	*159·2*	*118·1*	128·8	87·7
	A.D. 4	**1523**	**1541**	**1599**	**1657**	**1715**	**1772**	**1830**	**1888**	**1906**	**1964**
N.	189°·94	136·4°	146·1°	105·0	63·9°	22·8°	347·9°	*306·8*	*265·7*	276·4°	235·3
F.	174°·60	151·1	161·8	120·7	79·6	38·5	−362·6	−321·5	−280·4	− 291·1	−250·0
N.	5°·92	*313·6*	*324·3*	*283·2*	*242·1*	*201·0*	*159·9*	*118·8*	77·7°	*88·4*	*47·3*
F.	350°·58	−328·4	−339·1	−298·0	−256·9	−215·8	174·7	133·6	92·5	103·2	62·1
	A.D. 5	**1524**	**1542**	**1600**	**1658**	**1716**	**1773**	**1831**	**1889**	**1907**	**1965**
N.	181°·89	125·5	136·2°	95·1°	54·0°	12·9°	337·0°	*295·9*	254·8	*265·5*	224·4°
F.	166°·56	*140·3*	151·0	*109·9*	*68·8*	*27·7*	−*351·8*	−*310·7*	−*269·6*	−*280·3*	−*239·2*
F.	13°·21	*287·8*	*298·5*	*257·4*	*216·3*	*175·2*	*134·1*	*93·0*	51·9	*62·6*	*21·5*
N.	357°·87	−302·6	−313·3	−272·2°	−231·1	190·0°	148·9°	107·8°	66·7°	77·4	36·3°
F.	189°·18	99·9	110·6	69·5	28·4	−352·5	311·4	270·3	229·2	239·9	198·8
	A.D. 6	**1525**	**1543**	**1601**	**1659**	**1717**	**1774**	**1832**	**1890**	**1908**	**1966**
N.	173°·85	*114·6*	*125·3*	84·2°	43·1°	*2·0*	−*326·1*	−*285·0*	−243·9°	−254·6	−213·5
F.	5°·16	277·0	287·7	246·6	205·5	164·4	123·3	82·2	41·1	51·8	10·7
N.	349°·88	−291·8°	−302·5°	−261·4	−220·3	*179·2*	138·1°	97·0°	55·9	66·6°	25·5
						(America) 1775	1833	1891	1909		
N.	196°·47	*74·3*	*85·0*	43·9	*2·8*	*326·9*	285·8°	*244·7*	*203·6*	*214·3*	*173·2*
F.	181°·14	89·1	99·8	58·7	17·6	341·7	300·6	259·5	218·4	229·1	188·0
N.	166°·81	*103·8*	*114·5*	*73·4*	*32·3*	−*356·4*	−*315·5*	−*274·2*	−233·1	−*243·8*	*202·7*

TABLE IV-L—cont.

Cycles of recurrence of Eclipses—Solar and Lunar—cont.

		0	57	115	173	191	249	307	365	423	481	539	557	614	672	730	788	846	864	922	980
		Yrs. Dys.	324·1	283·0	241·9	252·6	211·5	170·4	129·3	88·2	47·1	6·0	16·7	340·8	299·7	258·6	217·5	176·4	187·1	146·0	104·9
	Cyclic variation; add algebraically to fig. in col. 2.		−·08	−·17	−·25	+·22	+·14	+·05	−·03	−·12	−·20	−·29	+·18	+·10	+·01	−·07	−·16	−·24	+·23	+·15	+·06
		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
	Sun from node.	Successive differences	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
		A.D. 7	**65**	**123**	**181**	**199**	**256**	**314**	**372**	**430**	**488**	**546**	**564**	**622**	**680**	**738**	**795**	**853**	**871**	**929**	**987**
N.	12°·45	*140·5*	*99·4*	*58·3*	*17·2*	*27·9*	*−352·0*	*310·9*	*269·8*	*228·7*	*187·6*	*146·5*	*157·2*	*116·1*	*75·0*	*33·9*	*- 358·0*	316·9*	*327·6*	*286·5*	*245·4*
F.	357°·11	155·2	114·2	73·1	32·0	42·7	1·6	325·7	284·6	243·5	202·4	161·3	172·0	130·9	89·8	48·7	7·6	331·7	342·4	301·3	260·2
N.	341°·78	169·9	*128·9*	*87·8*	*46·7*	*57·4*	*16·3*	*−324·4*	*−283·3*	*−242·2*	*−201·1*	*176·0*	*186·7*	*145·6*	*104·5*	*63·4*	*22·3*	*−346·4*	*−357·1*	*−316·0*	*−274·9*
N.	188°·43	317·7	276·6*	235·5	194·4*	205·1	164·0	122·9	81·8*	40·7	304·8*	323·7*	334·4	*293·3*	252·2*	211·1	170·0*	128·9	139·6	98·5*	57·4*
F.	173°·09	−332·4	−291·4	−250·3	−209·2	−219·9	178·8	137·7	96·7	55·6	14·5	F. − 338·5	−349·2	−308·1	−267·0	− 225·9	184·8	143·7	154·4	113·3	72·2
		A.D. 8	**66**	**124**	**182**	**200**	**257**	**315**	**373**	**431**	**489**	**547**	**565**	**623**	**681**	**739**	**796**	**854**	**872**	**930**	**988**
N.	4°·40	129·6*	*88·5*	47·4	*6·3*	17·0*	*341·1*	*300·0*	*258·9*	*217·8*	176·7*	N. *135·6*	*146·3*	*105·2*	64·1*	*23·0*	347·1	*306·0*	316·7*	*275·6*	234·5*
F.	349°·07	144·3	103·3	*62·2*	*21·1*	*31·8*	−355·9	*−314·8*	−273·7	−232·6	191·5	F. 150·4	161·1	120·0	78·9	*37·8*	*−361·9*	*−320·8*	*−331·5*	−290·4	*−249·3*
N.	180°·38	306·8*	*265·7*	224·6*	*183·5*	194·2	153·1	112·0*	70·9	29·8*	353·8*	N. *312·3*	323·5*	282·4*	241·3*	200·2	*159·1*	118·0	128·7*	87·6	46·5*
F.	165°·04	*−321·5*	*−280·5*	*−239·4*	*198·3*	*209·0*	*167·9*	*126·8*	*85·7*	*44·6*	*3·5*	F. *−327·6*	*338·3*	*−297·2*	*−256·1*	*215·0*	*173·9*	*132·8*	143·5	*102·4*	*61·3*
		A.D. 9	**67**	**125**			**258**	**316**	**374**	**432**	**490**	**548**	**566**	**624**	**682**		**797**	**855**	**873**	**931**	**989**
F.	11°·69	*108·9*	67·8	21·7	345·8	*−356·5*	315·4	*274·3*	*233·2*	*192·1*	*151·0*	F. *109·9*	*120·6*	79·5	38·4	- 362·5	321·4	*280·3*	*291·0*	*249·9*	*208·8*
N.	356°·60	118·7	77·6	36·5*	360·6	6·1	*−330·3*	*−289·1**	*−248·0**	- 206·9*	*165·8*	N. 124·7*	135·4*	94·3	53·2*	12·1*	*−336·2*	−295·1	*−305·8*	- 264·7*	- 223·6*
F.	187°·67	281·1	240·0	198·9	157·8	168·5	127·4	86·3	45·2	4·1	328·2	F. 287·1	297·8	256·7	215·6	174·5	133·4	92·3	103·0	61·9	20·8
N.	172°·33	*−295·9*	*−254·8*	*213·7*	*172·6*	183·3*	142·2*	*101·1*	*60·0*	*18·9*	343·0*	N. *−301·9*	*−312·6*	*− 271·5**	*- 230·4**	*189·3*	*148·2*	107·1*	117·8*	*76·7*	*35·6*
		A.D. 10	**68**		**183**	**201**	**259**	**317**	**375**	**433**	**491**	**549**	**567**	**625**	**683**	**740**	**798**	**856**	**874**	**932**	**990**
N.	18°·98	*78·3*	*37·2*	*−304·3*	*320·2*	*330·9*	*289·8*	*248·7*	*207·6**	*166·5*	*125·4*	N. *84·3*	*95·0*	*53·9*	*12·8*	*336·9*	*295·8*	*254·7*	*265·4*	*224·3*	*183·2*
F.	3°·65	93·0	52·0	10·9	335·0	345·7	304·6	263·5	222·4	181·3	140·2	F. 99·1	109·8	68·7	27·6	−351·7	310·6	269·5	280·2	239·1	198·0
N.	348°·31	107·8	66·7	25·6	−349·7	−360·4	−319·3	−278·2	−237·1	196·0*	154·9*	N. 113·8	124·5*	83·4	42·3	*1·2*	- 325·3	−284·2*	−294·9	−253·8	212·7*
N.	194°·96	255·4	*214·3*	173·2	*132·1*	*142·8*	*101·7*	60·6	*19·5*	343·6	302·5	N. 261·4*	272·1	*231·0*	*189·9*	*148·8*	107·7	66·6	77·3	36·2	−360·3*
F.	179°·62	270·2	229·1	188·0	146·9	157·6	116·5	75·4	34·3	−358·4	317·3	F. 276·2	286·9	245·8	204·7	163·6	122·5	81·4	92·1	51·0	9·9
N.	164°·29	*−285·0*	*−243·8*	*202·7*	*161·6*	*172·3*	*131·2*	*90·1*	*49·0*	*7·9*	*−332·0*	N. *−290·9*	*−301·6*	*−260·5*	*- 219·4*	*178·3*	*137·2*	*96·1*	*106·8*	*65·7*	*24·6*
		A.D. 11	**69**	**126**	**184**	**202**	**260**	**318**	**376**	**434**	**492**	**550**	**568**	**626**		**741**	**799**	**857**	**875**	**933**	**991**
N.	10°·94	*67·4*	*26·3*	*330·4*	*309·3*	*330·0*	*278·9*	*237·8*	*196·7*	155·6	*114·5*	N. *73·4*	84·1*	*43·0*	*1·9*	*326·0*	*284·9*	*243·8*	*254·5*	*213·4*	*172·3*
F.	355°·60	82·1	41·1	−365·2	324·1	334·8	293·7	252·6	211·5	170·4	129·3	F. 88·2	98·9	57·8	16·7	340·8	299·7	258·6	269·3	228·2	187·1
N.	340°·26	*96·9*	*55·8*	*14·7*	*−338·8*	*−349·5*	*−308·4*	*−267·3*	*−226·2*	*185·1*	*144·0*	N. *102·9*	*113·6*	*72·5*	*31·4*	*−355·5*	*- 314·4*	*−273·3*	*−284·0*	*−242·9*	*201·8*
N.	186°·91	244·5	203·5	152·4*	121·3	132·0*	90·9*	49·8	8·7	332·8*	291·7*	N. 250·6*	*261·3*	220·2*	179·1	138·0*	96·9*	*55·8*	66·5*	25·4	349·5*
F.	171°·58	−259·3	−218·3	177·2	136·1	146·8	105·7	64·6	23·5	− 347·6	−306·5	F. - 265·4	−276·1	- 235·0	193·9	152·8	111·7	70·6	81·3	40·2	- 364·3
		A.D. 12	**70**	**127**	**185**	**203**	**261**	**319**	**377**	**435**	**493**	**551**	**569**	**627**	**684**	**742**	**800**	**858**	**876**	**934**	**992**
N.	2°·89	56·5	*15·4*	*339·5*	298·4	*309·1*	*268·0*	*226·9*	*185·8*	144·7*	103·6	N. 62·5*	73·2	32·1*	*−356·2*	315·1	*274·0*	*232·9*	*243·6*	202·5	*161·4*
F.	347°·55	71·2	*30·2*	*- 351·8*	*−313·2*	*- 323·9*	*- 282·8*	−241·7	200·6	159·5	118·4	F. 77·3	88·0	*46·9*	*5·8*	*−329·9*	*−288·8*	−247·7	- 258·4	217·3	176·2
F.	194°·20	*218·0*	*177·8*	*136·7*	*95·6*	*106·3*	*65·2*	*24·1*	*348·2*	*307·1*	*266·0*	F. *224·9*	*235·6*	*194·5*	*153·4*	*112·3*	*71·2*	*30·1*	*40·8*	*−364·9*	*323·8*
N.	178°·87	−233·7	192·6*	*151·5*	110·4*	121·1	80·0*	38·9*	- 363·0	*−321·9**	*−280·8*	N. *- 239·7*	*- 250·4**	*−209·3**	168·2	*127·1*	86·0*	44·9*	*55·6*	14·5	*−338·6**
		A.D. 13		**128**	**186**	**204**	**262**	**320**	**378**	**436**	**494**	**552**	**570**	**628**	**685**	**743**	**801**	**859**	**877**	**935**	**993**
F.	10°·18	30·8	−354·9	313·8	272·7	283·4	*242·3*	*201·2*	*160·1*	*119·0*	77·9	F. 36·8	47·5	6·4	330·5	289·4	*248·3*	*207·2*	*217·9*	*176·8*	135·7
N.	354°·84	45·6	4·5*	*−328·6*	−287·5	*−298·2*	*−257·1**	*−216·0**	17·9*	133·8	92·7*	N. 51·6	62·3	21·2*	*−345·3**	304·2	263·1	222·0	*−232·7**	191·6*	150·5*
F.	186°·16	208·0	166·9	125·8	84·7	95·4	54·3	13·2	337·3	296·2	255·1	F. 214·0	224·7	183·6	142·5	101·4	60·3	19·2	29·9	−354·0	312·9
N.	170°·82	*−222·8*	*181·7*	*140·6*	*99·5*	110·2*	*69·1*	*28·0*	*−353·1*	*−311·0*	*−269·9*	N. *−228·8*	*−239·5*	198·4*	*157·3*	*116·2*	75·1*	*34·0*	44·7*	*3·6*	- 327·7

Cycles of recurrence of Eclipses—Solar and Lunar—*cont.*

	0	1038	1096	1153	1211	1229	1287	1345	1403	1461	1519	1537	1595	1653	1710	1768	1826	1884	1902	1960
		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
		03·8	22·7	34·8	30·7	31·4	27·3	23·1	19·1	15·0	11·9	12·6	08·5	03·4	03·6	32·4	28·3	24·2	25·9	20·8
Cyclic variation; add algebraically to fig. in col. 2.		−·02	−·11	−·19	−·28	+·19	+·11	+·02	−·06	−·15	−·23	+·24	+·16	+·07	+·00	−·08	−·17	−·25	+·22	+·14
Sun from node.	Successive differences.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
		+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1
		(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
	A.D. 7	**1045**	**1103**	**1161**	**1219**	**1237**	**1295**	**1353**	**1410**	**1468**	**1526**	**1544**	**1602**	**1660**	**1718**	**1776**	**1834**	**1892**	**1910**	**1967**
N.	12°·45	*140·5*	*204·3*	*163·2*	*122·1*	*81·0*	*91·7*	*50·6*	*9·5*	*333·6*	*292·5*	N.	*251·4*	*263·1*	*221·0*	*179·9*	*138·8*	*97·7*	*56·6*	*15·5*	*26·2*	*350·3*
F.	357°·11	155·2	219·1	178·0	136·9	95·8	106·5	65·4	24·3	348·4	307·3	F.	266·2	276·9	235·8	194·7	153·6	112·5	71·4	30·3	41·0	−365·1
N.	341°·78	169·9	*−333·8*	*192·7*	*151·6*	*110·5*	*121·2*	*80·1*	*39·0*	*−363·1*	*−323·0*	N.	*−350·9*	*−391·6*	*−250·5*	*209·4*	*168·3**	*127·2*	*86·1*	*45·0*	*55·7*	*14·6*
N.	188°·43	317·7	16·3*	*340·4*	299·3*	*258·2*	268·9*	227·8	*186·6*	145·5	104·4*	N.	63·3*	74·0*	32·9*	357·1*	316·0*	274·9	*233·8* (*America*)	192·7 (penumbra)	203·4	162·3*
F.	173°·09	−332·4	31·1	−355·2	−314·1	−273·0	−283·7	−242·6	201·4	160·3	119·2	F.	78·1	88·8	47·7	6·6	330·8	−289·7	− 248·6	− 207·5	− 218·2	177·1
	A.D. 8	**1046**	**1104**	**1162**	**1220**	**1238**	**1296**		**1411**	**1469**	**1527**	**1545**	**1603**	**1661**	**1719**	**1777**	**1835**	**1893**	**1911**	**1968**
N.	4°·40	129·6*	*193·4*	*152·3*	111·2*	70·1*	*80·8*	*39·7*	353·8*	322·7*	*381·6*	N.	*240·5*	251·2*	*210·1*	*169·0*	*127·9*	86·8*	45·7	4·6	*15·3*	*339·4**
F.	349°·07	144·3	208·2	167·1	126·0	*84·9*	95·6	54·5	*13·4*	*−327·5*	296·4	F.	−255·3	−266·0	224·9	183·8	142·7	101·6	60·5	*19·4*	*30·1*	*−354·2*
N.	180°·38	306·8*	5·4*	329·5	288·4	*247·3*	258·0*	216·9*	175·8*	134·7	93·6*	F.	52·5*	63·2	*22·1**	340·2*	305·1*	*264·0*	222·8*	*181·8*	192·5*	151·4
F.	165°·04	*−321·5*	*30·9*	*−344·3*	*−303·2*	*−262·1*	*272·8*	*−231·7*	*190·6*	*149·5*	*108·4*	F.	*67·3*	*78·0*	*36·9*	*−361·0*	*−319·9*	*−278·8*	*−237·7*	*196·6*	*207·3*	*166·2*
	A.D. 9	**1047**	**1105**	**1163**	**1221**	**1239**	**1297**	**1354**	**1412**	**1470**	**1528**	**1546**	**1604**	**1662**	**1720**	**1778**	**1836**			**1969**
F.	11°·69	*103·9*	*167·7*	*126·6*	85·5	44·4	*55·1*	14·0	338·1	297·0	255·9	F.	*214·8*	*225·5*	*184·4*	*143·3*	*102·2*	61·1	20·0	344·1	354·8	313·7
N.	356°·60	118·7	182·5*	*141·4*	100·3*	59·2*	69·9*	28·8*	−352·9	−311·8*	270·7	N.	−229·6*	−240·3*	*199·2*	158·1*	117·0*	75·9	34·8	−358·9*	4·4	−328·5
F.	187°·67	281·1	344·9	303·8	262·7	221·6	232·3	191·2	150·1	109·0	67·9	F.	26·8	37·5	−361·1	320·5	279·4	238·3	197·2	156·1	166·8	125·7
N.	172°·38	*295·9*	−359·7*	*−318·6*	*277·5*	*−236·4*	−247·1*	*206·0*	164·9*	*123·8*	*82·7*	F.	*41·6*	*52·3**	11·2*	*335·3*	*294·2*	*−253·1*	212·0*	170·9*	181·6	*140·5*
	A.D. 10	**1048**	**1106**	**1164**	**1222**	**1240**		**1355**	**1413**	**1471**	**1529**	**1547**	**1605**	**1663**	**1721**	**1779**		**1894**	**1912**	**1970**
N.	18°·98	*78·3*	*142·1*	*101·0*	*59·9*	*18·8*	*39·5*	*−353·6*	*312·5*	*271·4*	*230·3*	N.	*189·2*	*199·9*	*158·8*	*117·7*	*76·6*	*35·5*	*−359·6*	*318·5*	*329·2*	*288·1*
F.	3°·65	93·0	156·9	115·8	74·7	33·6	44·3	3·2	327·3	286·2	245·1	F.	204·0	214·7	173·6	132·5	91·4	50·3	9·2	333·3	314·0	302·9
N.	348°·31	107·8	171·6	130·5*	89·4*	48·3	59·0*	17·9	*−342·0*	*−300·9*	*−259·8*	N.	−218·7*	−229·4	188·3	*147·2*	106·1*	65·0	23·9	−348·0	*−358·7*	−317·6
N.	194°·96	255·4	319·2*	278·1*	237·0*	195·9	206·6	*165·5*	124·4	83·3	42·2	N.	1·1*	11·8	*335·9*	294·8*	253·7	212·6	*171·5*	130·4*	*141·1*	100·0
F.	179°·62	270·2	334·0	292·9	251·8	210·7	221·4	180·3	139·2	98·1	57·0	F.	15·9	26·6	−350·7	309·6	268·5	227·4	186·3	145·2	155·9	114·8
N.	164°·29	*−355·0*	*−348·7*	*−307·6*	*−266·5*	*−225·4*	*236·1*	*195·0*	*153·9*	*112·8*	*71·7*	N.	*30·6*	*41·3*	*0·2*	*−324·3*	*−283·2*	*−243·1*	*201·0*	*159·9*	*170·6*	*129·5*
	A.D. 11	**1049**	**1107**	**1165**	**1223**	**1241**	**1298**	**1356**	**1414**	**1472**	**1530**	**1548**	**1606**	**1664**	**1722**	**1780**	**1837**	**1895**	**1913**	**1971**
N.	10°·94	*67·4*	*131·2*	*90·1*	*49·0*	*7·9*	*18·6*	*342·7*	*301·6*	*260·5*	*219·4*	N.	*178·3*	*189·0*	*147·9*	*106·8*	*65·7*	*24·6*	*348·7*	*307·6*	*318·8*	*277·2*
F.	355°·60	82·1	146·0	104·9	63·8	22·7	33·4	−357·5	316·4	275·3	234·2	F.	193·1	203·8	162·7	121·6	80·5	39·4	−363·5	322·4	333·1	292·0
N.	340°·26	*96·9*	*160·7*	*119·6*	*78·5*	*37·4*	*48·1*	*7·0*	*−331·1*	*−290·0*	*−248·9*	N.	*207·8*	*−218·5*	*177·4*	*136·3*	*95·2*	*54·1*	*13·0*	*−337·1*	*347·8*	*306·7*
N.	186°·91	244·5	*308·4*	267·3*	*226·2*	185·1*	195·8*	154·7*	113·6	72·5*	31·4*	N.	*−355·5*	0·8*	*325·1**	284·0*	242·9	201·8	*160·7*	119·6*	130·3	*89·2*
F.	171°·58	−259·3	−323·2	−282·1	−241·0	199·9	−210·6	169·5	128·4	87·3	46·2	F.	5·1	15·8	−339·9	−298·8	−257·7	−216·6	175·5	134·4	145·1	104·0
	A.D. 12	**1050**	**1108**	**1166**		**1242**	**1299**	**1357**	**1415**	**1473**	**1531**	**1549**	**1607**	**1665**	**1723**	**1781**	**1838**	**1896**	**1914**	**1972**
N.	2°·89	56·5	*120·3*	79·2*	38·1*	*−362·2*	7·7	331·8*	290·7*	*249·6*	*208·5*	N.	*167·4*	178·1*	*137·0*	*95·9*	54·8*	13·7	337·8	*296·7*	307·4	266·3
F.	347°·55	71·2	135·1	94·0	*52·9*	*11·8*	*22·5*	*−346·6*	*−305·5*	−264·4	−223·3	F.	182·2	192·9	151·8	110·7	*69·6*	*28·5*	*−352·6*	*−311·5*	*−322·2*	*−281·1*
F.	194°·20	*218·9*	*282·7*	*241·6*	*200·5*	*159·4*	*170·1*	*129·0*	*87·9*	*46·8*	5·7	F.	*329·9*	*340·5*	*299·4*	*258·3*	*217·2*	*176·1*	*135·0*	*93·9*	*104·6*	*63·5*
N.	178°·87	*−233·7*	−297·5*	*−256·4*	*−215·3*	*174·2*	184·9*	143·8*	102·7*	61·6*	20·5*	N.	*−344·6*	−355·3*	−314·2*	−273·1*	*−232·0*	190·9*	149·8	*108·7*	119·4	78·3
	A.D. 13	**1051**	**1109**	**1167**	**1224**		**1300**	**1358**	**1416**	**1474**	**1532**	**1550**	**1608**	**1666**	**1724**		**1839**	**1897**	**1915**	**1973**
F.	10°·18	30·8	94·6	53·5	12·4	336·5	347·2	306·1	265·0	223·9	*182·8*	F.	*141·7*	*152·4*	111·3	70·2	29·1	−353·2	312·0	271·0	281·7	240·6
N.	354°·84	45·6	109·4	68·3*	27·2*	*−314·3*	−362·0*	−320·9	−279·8*	−238·7	197·6*	N.	156·5*	*167·2*	126·1	85·0*	43·9	2·8	−326·9*	−285·8*	−296·5	−255·4
F.	186°·16	208·0	271·8	230·7	189·6	148·5	159·2	118·1	77·0	35·9	−360·0	F.	318·9	329·6	288·5	247·4	206·3	165·2	124·1	83·0	93·7	52·6
N.	170°·82	−222·8	*286·6*	−245·5*	*204·4*	*163·3*	*174·0*	132·9*	91·8*	50·7	9·6	N.	*−333·7*	*−344·4*	*−303·3*	*−262·2*	*−221·1*	180·0*	138·9*	*97·8*	*108·5*	*67·4*

Cycles of recurrence of Eclipses—Solar and Lunar—cont.

			Yrs. Dys.	Yrs. Dys.	Yrs. Dys	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
		0	57	115	173	191	249	307	365	423	481		539	557	614	672	730	788	846	864	922	980
			324·1	293·0	241·9	252·6	211·5	170·4	129·3	88·2	47·1		6·0	16·7	340·8	299·7	258·6	217·5	176·4	187·1	146·0	104·9
		Cyclic variation; add algebraically to fig. in col. 2.	−·08	−·17	−·25	+·22	+·14	+·05	−·03	−·12	−·20		−·29	+·18	+·10	+·01	−·07	−·16	−·24	+·23	+·15	+·06
			Yrs. Dys.	Yrs. Dys.	Yrs. Dys	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
	Sun from node.	Successive differences.	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1		+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
		A.D. 14	**71**	**129**	**187**	**205**	**263**	**321**	**379**	**437**	**495**		**553**	**571**		**686**	**744**	**802**	**860**	**878**	**936**	**994**
N.	17°·47	5·2	*339·3*	*288·1*	*247·0*	*257·7*	*216·6*	*175·5*	*134·4*	*93·3*	*52·2*	N.	*11·1*	*21·8*	*345·9*	*304·8*	*263·7*	*222·6*	*181·5*	*192·2*	*151·1*	*120·0*
F.	2°·13	19·9	344·0	302·9	261·8	272·5	231·4	190·3	149·2	108·1	67·0	F.	25·9	36·6	−360·7	319·6	278·5	237·4	196·3	207·0	165·9	124·8
N.	346°·79	34·7	*−358·7*	−317·6	−276·5	−287·2	−246·1	205·1	164·0•	122·9	81·8	N.	*40·7*	51·4	10·3	*−334·4*	*−293·5*	−252·2•	211·1•	−221·8	180·7•	139·6
N.	193°·44	*182·5*	141·3	100·2	59·1	69·8	28·7	−352·8	311·7	270·6	229·5	N.	188·4	*199·1*	158·0	116·9	75·8	34·7•	−358·8•	4·3	328·4•	287·3•
F.	178°·11	197·1	156·1	115·0	73·9	84·6	43·5	2·4	326·5	285·4	244·3	F.	203·2	213·9	172·8	131·7	90·6	49·5	8·4	19·1	343·2	302·1
N.	162°·77	*211·9*	*170·8*	*129·7*	*98·6*	*99·3*	*58·2*	*17·1*	*−341·2*	*−300·1*	*−259·0*	N.	*−317·9*	*−228·6*	*187·5*	*146·4*	*105·3*	*64·2*	*23·1*	*33·8*	*−357·9*	*−316·8*
N.	9°·42	*−359·5*	*318·3*	*277·2*	*236·1*	*246·8*	*205·7*	*164·6*	*123·5*	*82·4*	*41·3*	N.	0·2•	*10·9*	*355·0*	*293·9*	*252·8*	*211·7*	*170·6*	*181·3*	*140·2*	*99·1*
F.	354°·09	9·0	−333·1	−292·0	−250·9	−261·6	−220·5	179·4	138·3	97·2	56·1	F.	15·0	25·7	−349·8	−308·7	−267·6	−226·5	185·4	196·1	155·0	113·4
		A.D. 15	**73**	**131**	**189**	**207**	**265**	**322**	**380**	**438**	**496**		**554**	**572**	**630**	**688**	**746**	**804**	**861**	**879**	**937**	**995**
N.	185°·39	171·5	130·3•	89·2	48·1•	58·8•	17·7	341·8	300·7•	259·6•	218·5•	N.	*177·4*	188·1•	147·0•	105·9•	64·8•	23·7	347·8•	−358·5	317·4•	*276·3*
F.	170°·06	186·2	145·1	104·0	62·9	73·6	32·5	−356·6	−315·5	−274·4	−233·3	F.	192·2	−202·9	161·8	120·7	79·6	*38·5*	−362·6	8·1	−332·2	−291·1
N.	1°·38	*348·6*	307·5•	*266·4*	225·3•	*236·0*	*194·9*	*153·8*	112·7•	*71·6*	30·5	N.	−354·6•	0·0•	324·2•	283·1	*242·0*	*200·9*	159·8•	170·5•	*129·4*	*88·3*
F.	346°·04	*−363·4*	*−322·3*	*−281·2*	*−240·1*	*−250·8*	−209·7	168·6	*127·5*	*86·4*	*45·3*	F.	*4·2*	*14·9*	*−339·0*	*−297·9*	*−256·8*	215·7	174·6	185·3	*144·2*	*103·1*
		A.D. 16	**74**	**132**	**190**	**208**		**323**	**381**	**439**	**497**		**555**	**573**	**631**	**689**	**747**		**862**	**880**	**938**	**996**
F.	192°·69	*145·8*	*104·7*	*63·6*	22·5	33·2	−357·4	*316·3*	*275·2*	*234·1*	*193·0*	F.	*151·8*	*162·5*	*121·4*	*80·3*	39·2	−363·4	322·3	333·0	291·9	*250·8*
N.	177°·35	160·6•	119·5	78·4•	37·3•	48·0	6·9•	−331·2•	−290·1•	*−249·0*	*−207·8*	N.	*166·6*	177·3•	136·2	95·1	54·0•	12·9	*−337·1*	*−347·8*	−306·7•	−265·6•
F.	8°·66	323·0	281·9	240·8	*199·7*	*210·4*	*169·3*	128·2	87·1	46·0	4·9	F.	329·1	339·8	298·7	257·6	*216·5*	175·4	134·3	145·0	103·9	62·8
N.	353°·33	−337·7•	−296·6	−255·5	*−214·4*	−225·1•	184·0•	142·9	101·8	60·7•	19·6	N.	−343·8	−354·5•	−313·4•	−272·3	−231·2•	190·1	149·0•	159·7	118·6•	77·5
		A.D. 17	**75**	**133**	**190**	**209**	**266**	**324**	**382**	**440**	**498**		**556**	**574**	**632**	**690**	**748**	**805**	**863**	**881**	**939**	**997**
N.	199°·98	*130·1*	*79·0*	*37·9*	*−363·1*	*7·5*	*331·6*	*290·5*	*249·4*	*208·3*	*167·2*	N.	*126·1*	*136·8*	*95·7*	*54·6*	*13·5*	*337·6*	*296·5*	*307·2*	*266·1*	*225·0*
F.	184°·64	134·9	93·8	52·7	11·6	22·3	346·4	305·3	264·2	223·1	182·0	F.	140·9	151·6	110·5	69·4	28·3	−352·4	311·3	322·0	280·9	239·8
N.	169°·31	*149·7*	*108·5*	*67·4*	*26·3*	*37·0*	*−361·1*	*−320·0*	*−278·9*	*−237·8*	*196·7*	N.	*155·6*	166·3•	*125·2*	*84·1*	*43·0*	*1·9*	*−326·0*	*−336·7*	*−295·6*	*−254·5*
F.	15°·95	*297·3*	*256·2*	*215·1*	*174·0*	*184·7*	*143·6*	*102·5*	*61·4*	*20·3*	*344·5*	N.	*303·4*	*314·1*	*273·0*	*231·9*	*190·8*	*149·7*	*108·6*	*119·3*	*78·2*	*37·1*
F.	0°·62	312·1	271·0	229·9	188·8	199·5	158·4	117·3	76·2	35·1	−359·3	F.	318·2	328·9	287·8	246·7	205·6	164·5	123·4	134·1	93·0	51·9
N.	345°·28	*−326·8*	−285·7	−244·6	−203·5	214·2	173·1	132·0	*90·9*	49·8	*8·7*	N.	−332·8	*−343·6*	*−302·5*	−261·4	−220·3	179·2•	138·1•	148·7	107·6•	66·5
		A.D. 18	**76**	**134**	**191**		**267**	**325**	**383**	**441**	**499**		**557**	**575**	**633**	**691**	**749**	**806**	**864**	**882**	**940**	**998**
N.	191°·93	109·2	68·1	27·0	−351·2	−361·9	320·8	279·7•	238·6•	197·5	156·4	N.	115·3	126·0	84·9•	43·8	2·7•	326·5•	285·7	*296·4*	*255·3*	214·2•
F.	176°·59	124·0	82·9	41·8	0·7	11·4	335·6	294·5	253·4	212·3	171·2	F.	130·1	140·8	99·7	58·6	17·5	341·6	300·5	311·2	270·1	229·0
N.	161°·26	*138·8*	*97·7*	*56·6*	*15·5*	*26·3*	*−350·3*	*−309·2*	*−268·1*	*−227·0*	*185·9*	N.	*144·8*	*155·5*	*114·4*	*73·3*	*32·2*	*−356·3*	*−315·2*	*−325·9*	*−284·8*	*−243·7*
F.	352°·57	*−301·2*	*−260·1*	*−219·0*	177·9	188·6	147·5	106·4	65·3	24·2	−348·3	F.	−307·2	−317·9	−276·8	−235·7	194·6	153·5	112·4	123·1	82·0	40·9
		A.D. 19	**77**	**135**	**192**	**210**	**268**	**326**	**384**	**442**	**500**		**558**	**576**	**634**	**692**		**807**	**865**	**883**	**941**	**999**
N.	188°·88	98·4•	*57·3*	16·2•	340·3•	−351·0	*309·9*	268·8•	227·7	186·6•	145·5	N.	104·4	115·1•	74·0	32·9•	*−357·1*	*316·0•*	274·9	285·6•	244·5	203·4•
F.	168°·55	113·1	*72·0*	30·9	*−355·1*	*0·5*	*−334·6*	−283·5	−242·4	201·3	160·2	F.	119·1	129·8	88·7	47·6	*6·5*	*−330·7*	*−289·6*	−300·3	*−259·2*	−218·1
F.	15°·2	*260·8*	*219·7*	*178·6*	*137·5*	*148·2*	*107·1*	*66·0*	*24·9*	*349·0*	*307·9*	F.	*266·8*	*277·5*	*236·4*	*195·3*	*154·2*	*113·1*	*72·0*	*82·7*	*41·6*	*0·5*
N.	359°·9	−276·6•	*−234·5*	193·4•	*153·3*	163·0	121·9	80·8•	39·7•	−363·8	*−322·7*	N.	*−281·6*	−292·3•	−251·2•	*−210·1*	*169·0*	127·9•	86·8•	97·5	56·4•	15·3•

Cycles of recurrence of Eclipses—Solar and Lunar—cont.

	0	1038 63·8	1096 22·7	1153 34·8	1211 305·7	1229 316·4	1287 275·3	1345 234·1	1403 193·1	1461 152·0
		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
Cyclic variation; add algebraically to fig. in col. 2.		−·02	−·11	−·19	−·28	+·19	+·11	+·02	−·06	−·15
		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
Sun from node.	Successive differences.	+58 −41·1 (23)	+58 −41·1 (24)	+58 −41·1 (25)	+58 −41·1 (26)	+18 +10·7 (27)	+58 −41·1 (28)	+58 −41·1 (29)	+58 −41·1 (30)	+58 −41·1 (31)
		A.D. 14	**1052**	**1110**		**1225**	**1243**	**1301**	**1359**	**1417**	**1475**
N.	17°·47	*5·2*	*68·9*	*27·8*	*—351·9*	*310·8*	*321·5*	*280·4*	*239·3*	*198·2*	*157·1*
F.	2°·13	19·8	83·7	42·6	1·5	325·6	336·3	295·2	254·1	213·0	171·9
N.	346°·79	34·7	98·5	57·4	16·3	−340·4*	−351·1	*—310·0*	*—268·9*	*—227·8*	186·7*
N.	193°·44	*182·3*	246·2*	205·1*	164·0*	122·9	133·6	92·5*	*51·4*	10·3	334·4*
F.	178°·11	197·1	261·0	219·9	178·8	137·7	148·4	107·3	66·2	25·1	349·2
N.	182°·77	*211·9*	*—375·7*	*—234·6*	*193·5*	*152·4*	*163·1*	*122·0*	*80·9*	*39·8*	*—365·9*
N.	9°·42	*—359·5*	*58·0*	*16·9*	*341·0*	299·9*	*310·6*	*269·5*	*228·4*	*187·3*	*146·2*
F.	354°·09	9·0	72·8	31·7	—355·8	—314·7	—325·4	—284·3	—243·2	202·1	161·0
		A.D. 15	**1053**	**1111**	**1169**	**1227**	**1245**	**1303**	**1361**	**1418**	**1476**
N.	185°·39	171·5	235·2*	*194·1*	153·0*	111·9*	122·6*	81·5*	40·4*	*—364·5**	*323·4*
F.	170°·06	186·2	*—250·0*	208·9	167·8	126·7	137·4	96·3	55·2	14·1	−338·2
N.	1°·38	*348·6*	47·2*	6·1	*330·2*	*289·1*	299·8*	258·7*	*217·6*	*176·5*	135·4
F.	346°·04	*—363·4*	*62·0*	*20·9*	*—345·0*	*—303·9*	*—314·6*	*—273·5*	*—232·4*	*191·3*	*150·2*
		A.D. 16	**1054**	**1112**	**1170**	**1228**	**1246**	**1304**	**1362**	**1419**	**1477**
F.	192°·69	*145·8*	*209·7*	*168·6*	*127·5*	*86·3*	*97·0*	55·9	*14·7*	338·8	297·7
N.	177°·35	160·6*	*—224·5**	183·4	*142·3*	101·1*	111·8	70·7*	29·6*	*—353·7*	*—312·6*
F.	8°·66	323·0	21·7	345·9	304·8	263·7	274·4	233·3	192·2	151·1	110·0
N.	353°·33	*—337·7**	36·4	−360·6*	*—319·5*	*—278·4**	−289·1	*—248·0*	206·9	165·8*	124·7*
		A.D. 17	**1055**	**1113**	**1171**	**1229**	**1247**	**1305**	**1362**	**1420**	**1478**
N.	199°·98	*120·1*	*183·9*	*142·8*	*101·7*	*60·6*	*71·3*	*30·2*	*—354·4*	*313·3*	*272·2*
F.	184°·64	134·9	198·7	157·6	116·5	75·4	86·1	45·0	3·9	328·1	287·0
N.	169°·31	*149·7*	213·4*	172·3	*131·2*	*90·1*	100·8*	*59·7*	*18·6*	*—342·8*	*—301·7*
N.	15°·95	*297·5*	*—361·3*	*320·2*	*279·1*	*238·0*	*248·7*	*207·6*	*166·5*	*125·4*	*84·3*
F.	0°·62	312·1	10·8	334·9	293·8	252·7	263·4	222·3	181·2	140·1	99·0
N.	345°·28	*—326·8*	*25·4*	*—349·0*	—308·5*	—267·4	*278·1*	—237·0	*195·9*	154·8*	113·7
		A.D. 18	**1056**	**1114**	**1172**	**1230**	**1248**	**1306**	**1363**	**1421**	**1479**
N.	191°·93	109·2	173·1*	132·0	90·9	49·8*	60·5*	19·4	343·5*	302·4*	261·3*
F.	176°·59	124·0	187·9	146·8	105·7	64·6	75·3	34·2	—358·3	317·2	276·1
N.	161°·26	*138·8*	*202·6*	*161·5*	*120·4*	*79·3*	*90·0*	*48·9*	*7·8*	*—331·9*	*—290·8*
N.	7°·81	286·4	*351·0*	*309·1*	*268·0*	*226·9*	*237·6*	*196·5*	*155·4*	*114·3*	73·2*
F.	352°·57	*—301·3*	0·5	—324·9	—282·8	—241·7	−252·4	—211·3	170·2	129·1	88·0
		A.D. 19	**1057**	**1115**	**1173**	**1231**	**1249**	**1307**	**1364**	**1422**	**1480**
N.	183°·88	98·4*	*102·3*	121·2*	80·1*	39·0	49·7*	8·6*	332·7*	*291·6*	*250·5*
F.	168°·55	113·1	177·0	135·9	94·8	*53·7*	64·4	*23·3*	*—347·4*	*—306·3*	*—265·2*
F.	15°·2	*260·8*	*324·7*	*283·6*	*242·5*	*201·4*	*212·1*	*171·0*	*129·9*	*88·8*	*47·7*
N.	359°·9	—275·6*	—339·5	*—298·4*	*—257*	—216·2	*—226·9*	*185·8*	*144·7*	103·6*	62·5

		1519 110·9	1587 121·6	1595 89·5	1653 39·4	1710 363·6	1768 322·4	1826 281·3	1884 240·2	1902 250·9	1960 209·8
		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
Cyclic variation; add algebraically to fig. in col. 2.		−·23	+·24	+·16	+·07	+·00	−·08	−·17	−·25	+·22	+·14
		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
Sun from node.	Successive differences.	+58 −41·1 (32)	+18 +10·7 (33)	+58 −41·1 (34)	+58 −41·1 (35)	+58 −41·1 (36)	+58 −41·1 (37)	+58 −41·1 (38)	+58 −41·1 (39)	+18 +10·7 (40)	+58 −41·1 (41)
		1533	**1551**	**1609**	**1667**	**1725**	**1782**	**1840**	**1898**	**1916**	**1974**
N.		*116·0*	*126·7*	*85·6*	*44·5*	*3·4*	*327·5*	*286·4*	*245·3*	*256·0*	*214·9*
F.		130·8	141·5	100·4	59·3	18·2	342·3	301·2	260·1	270·8	229·7
N.		145·6*	156·3*	115·2	74·1*	33·0	*—357·1*	—316·0	—274·9	—285·6	—244·5
N.		293·3	*304·0*	262·9*	*221·8*	180·7	*139·6*	98·5	57·4	68·1	27·0
F.		308·1	318·8	277·7	236·6	195·5	154·4	113·3	72·2	82·9	41·8
N.		*—322·8*	*—333·5*	*—292·4*	*—251·3*	*210·2*	*169·1*	*128·0*	*86·9*	*97·6*	*56·5*
N.		*105·1*	*115·8*	74·7*	*33·6*	*—357·7*	*316·6*	*275·5*	*234·4*	*245·1*	*204·0*
F.		119·9	130·6	89·5	48·4	7·3	—331·4	—290·3	—249·2	—259·9	—218·8
		1534	**1552**	**1610**	**1668**	**1726**	**1784**	**1842**	**1900**	**1918**	**1976**
N.		282·3	293·0*	251·9*	210·8	169·7	128·6*	87·5*	46·4	57·1	16·0*
F.		*—297·1*	*—307·8*	—266·7	—225·6	184·5	143·4	102·3	61·2	71·9	30·8
N.		94·3*	*105·0*	*63·9*	22·8*	*346·9*	305·8*	*264·7*	223·6*	234·3	193·2*
F.		*109·1*	119·8	78·7	*37·6*	*—361·7*	*—320·6*	*—279·5*	*—238·4*	*—249·1*	*208·0*
		1535	**1553**	**1611**	**1669**	**1727**	**1785**	**1843**	**1901**	**1919**	
F.		*256·6*	*267·3*	*226·2*	*185·1*	*144·0*	*102·9*	61·8	20·7	*31·4*	−355·5
N.		*—271·5*	*—282·2*	—241·1*	*200·0*	158·9*	117·8*	*76·7*	35·6*	46·3	5·2
F.		68·9	79·6	38·5	—362·7	321·6	280·5	239·4	198·3	209·0	*167·9**
N.		83·6*	94·3	53·2*	12·1	*—356·3*	*—295·2**	*—254·1**	213·0*	*—223·7*	*182·6*
		1536	**1554**	**1612**	**1670**	**1728**	**1786**	**1844**	**1901**	**1920**	**1977**
N.		*231·1*	*241·8*	*200·7*	*159·6*	*118·5*	*77·4*	*36·3*	*—360·4*	*5·9*	*339·0*
F.		245·9	256·6	215·5	174·4	133·3	92·2	51·1	10·0	20·7	344·8
N.		*—260·6*	*—271·3*	*—230·2*	*189·1*	148·0*	*106·9*	*65·8*	*24·7*	*35·4*	*—359·5*
N.		*43·2*	*53·9*	*12·8*	*336·9*	*295·8*	*254·7*	*213·6*	*172·5*	*183·2*	*142·1*
F.		57·9	68·6	27·5	—351·7	310·6	269·5	228·4	187·3	198·0	156·9
N.		72·6	83·3*	*42·2*	*1·1*	*—325·3*	*—284·2*	*—243·1*	202·0*	212·7	171·6
		1537	**1555**	**1613**	**1671**	**1729**	**1787**	**1845**	**1902**		**1978**
N.		*220·2*	*230·9**	*189·8*	148·7*	107·6	66·5	25·4*	349·5*	—360·2	319·1
F.		235·0	245·7	204·6	163·5	122·4	81·3	40·2	—364·3	9·7	333·8
N.		*—249·7*	*—260·4*	*—219·3*	*178·2*	*137·1*	*96·0*	*54·9*	*13·8*	*24·5*	*—348·6*
N.		*32·1*	42·8*	1·7	*325·5*	*284·8*	*243·7*	*202·6*	161·5	172·2	*131·1*
F.		46·9	57·6	16·5	—340·3	—299·6	—258·5	—217·4	176·3	187·0	145·9
		1538	**1556**	**1614**	**1672**	**1730**	**1788**	**1846**	**1903**	**1921**	**1979**
N.		209·4	220·1*	179·0*	137·9	96·8*	55·7*	14·6	338·7*	349·4	308·3*
F.		*—224·1*	*—234·8*	193·7	152·6	111·5	*70·4*	*29·3*	*—353·4*	*—364·1*	*—323·0*
F.		*6·6*	*17·3*	*341·4*	*300·3*	*259·2*	*218·1*	*177·0*	*135·9*	*146·6*	*105·5*
N.		21·4	32·1	—356·2*	*—315·1*	*—274·0**	*—232·9*	191·8*	*150·7*	161·4*	*120·3*

TABLE IV-L—*cont.*

Cycles of recurrence of Eclipses—Solar and Lunar—*cont.*

			0	57	115	173	191	249	307	365	423	481
			Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
				57 324·1	115 283·0	173 241·9	191 252·6	249 211·5	307 170·4	365 129·3	423 88·2	481 47·1
		Cyclic variation; add algebraically to fig. in col. 2.		−·08	−·17	−·25	+·22	+·14	+·05	−·03	−·12	−·20
			Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
	Sun from node	Successive differences.	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	9)	(10)	(11)	(12)	
		A.D. 20	**78**		**193**	**211**	**269**	**327**	**385**	**443**	**501**	
F.	191°·17	72·7	31·6	−355·7	314·6	325·3	*284·2*	*243·1*	*202·0*	*160·9*	*119·8*	
N.	175°·84	87·5	46·3*	5·2*	*−329·4*	*−340·1*	−289·0*	*−257·9*	*−216·8*	*175·7*	134·6*	
F.	7°·15	249·9	208·8	167·7	126·6	137·3	96·2	55·1	14·0	338·2	297·1	
N.	351°·82	−264·6*	−223·5	182·4	141·3	152·0*	110·9	69·8	28·7	*−353·9*	−311·8	
		A.D. 21	**79**	**136**	**194**	**212**	**270**	**328**	**386**	**444**	**502**	
N.	198°·46	*47·0*	*5·9*	*330·1*	*289·0*	*299·7*	*258·6*	*217·5*	*176·4*	*135·3*	*94·2*	
F.	183°·13	61·8	20·7	344·9	303·8	314·5	273·4	232·3	191·2	150·1	109·0	
N.	167°·79	*76·6*	*35·4*	*−359·6*	*318·5*	*−329·2*	*−288·1*	*−247·0*	*205·9*	*164·8*	123·7*	
N.	14°·41	*234·2*	*193·1*	*142·0*	*100·9*	*111·6*	*70·5*	*29·4*	−353·6*	*312·5*	*271·4*	
F.	359°·10	239·0	197·9	156·8	115·7	126·4	85·3	44·2.	3·1	327·3	286·2	
N.	343°·77	−253·7	212·6	171·5	130·4	141·1	100·0	*58·9*	*17·8*	*−342·0*	*−300·9*	
		A.D. 22		**137**	**195**	**213**	**271**	**329**	**387**	**445**	**503**	
N.	190°·42	36·1	−360·3	319·2	278·1	*288·8*	247·7	206·6*	165·5	124·4	83·3*	
F.	175°·08	50·9	9·8	−334·0	−292·9	−303·6	−262·5	−221·4	180·3	139·2	98·1	
N.	6°·39	*215·3*	*173·2*	*131·1*	*90·0*	100·7*	*59·6*	*18·5*	*342·7*	301·6*	*260·5*	
F.	351°·06	−228·1	187·0	145·9	104·8	115·5	74·4	33·3	−357·5	−316·4	−275·3	
		A.D. 23	**80**	**138**	**196**	**214**	**272**	**330**	**388**	**446**	**504**	
N.	182°·37	*25·3*	349·4	308·3*	267·2	*277·9* (America).	236·8*	195·7	154·6*	113·5*	72·4	
F.	167°·03	*40·0*	*−364·2*	*−323·1*	*−282·0*	*−292·7*	−251·6	210·5	169·4	128·3	*87·2*	
F.	13°·68	*187·7*	*146·6*	*105·5*	*64·4*	*75·1*	*34·0*	−358·1	*317·0*	*275·9*	*234·8*	
N.	358°·35	*202·5*	161·4*	*120·3*	79·2*	89·9	48·8*	·7·7*	−331·8	*−290·7*	*−249·6*	
F.	189°·66	−364·9	323·7	282·6	241·5	*252·2*	211·1	*117·0*	*128·9*	87·8	46·7	
		A.D. 24	**81**	**139**	**197**	**215**	**273**	**331**	**389**	**447**	**505**	
N.	174°·32	14·4*	−338·5*	*−297·4*	*−256·3*	*−267·0*	−225·9*	*184·8*	*143·7*	102·6*	61·5*	
F.	5°·64	176·7	135·6	94·5	53·4	64·1	23·0	347·2	306·1	265·0	223·9	
N.	350°·30	191·5	150·4	109·3*	68·2	78·9*	37·8*	−362·0*	*−320·9*	−279·8	*−238·7*	
N.	196°·95	*339·2*	*298·1*	*257·0*	*215·9*	*226·6*	*185·5*	*144·4*	*103·3*	*62·2*	21·1	
F.	173°·57	−354·0	312·9	271·8	230·7	241·4	200·3	159·2	118·1	77·0	35·9	
		A.D. 25	**82**	**140**	**198**	**216**	**274**	**332**	**390**	**448**	**506**	
N.	166°·28	*3·5*	*−327·6*	*−286·5*	*−245·4*	*−256·1*	*215·0*	*173·9*	*132·8*	*91·7*	*50·6*	
N.	12°·93	*151·1*	*110·0*	*68·9*	*27·8*	*38·5*	*−362·7*	321·6*	*280·5*	*239·4*	*198·3*	
F.	357°·59	165·9	124·8	83·7	42·6	53·3	12·2	336·4	295·3	254·2	213·1	
N.	342°·25	180·6	139·5	98·4	*57·3*	*68·0*	*26·9*	*−351·1*	*−310·0*	*−268·9*	−227·8*	
N.	188°·90	328·3*	287·2	246·1*	205·0	215·7	174·6	133·5*	92·4	51·3*	10·2	
F.	173°·57	−343·1	−302·0	−260·9	−219·8	−230·5	189·4	148·3	107·2	66·1	25·0	
		A.D. 26	**84**	**142**	**200**	**218**	**275**	**333**	**391**	**449**	**507**	
N.	4°·88	*140·2*	*99·1*	58·0*	16·9*	27·6	*−351·7**	310·6*	*269·5*	*228·4*	*187·3*	
F.	349°·54	155·0	113·9	72·8	*31·7*	42·4	1·3	*−325·4*	*−284·3*	*−243·2*	202·1	
N.	180°·86	317·4	276·3*	235·2*	194·1	204·8*	163·7	122·6*	81·5*	*40·4*	*−364·5*	
F.	165°·52	*−332·2*	*−291·1*	*−250·0*	*208·9*	*−219·6*	*178·5*	137·4	*96·3*	*55·2*	*14·1*	

			539	557	614	672	730	788	846	864	922	980
			Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
			539 6·0	557 16·7	614 340·8	672 299·7	730 258·6	788 217·5	846 176·4	864 187·1	922 146·0	980 104·9
		Cyclic variation; add algebraically to fig. in col. 2.	−·29	+·18	+·10	+·01	−·07	−·16	−·24	+·23	+·15	+·06
			Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
			+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1
			(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
			559	**577**	**635**	**693**	**750**	**808**	**866**	**884**	**942**	**1000**
F.			*78·9*	*89·4*	48·3	7·2	331·4.	290·3	249·2	259·9	*218·8*	*177·7*
N.			93·5*	*104·2*	*63·1*	22·0*	*−346·2*	*−305·1*	−264·0*	−274·7*	−233·6*	192·5*
F.			266·0	266·7	225·6	184·5	143·4	102·3	61·2	71·9	30·8	−354·9
N.			−270·7	−281·4*	−240·3	199·2*	158·1	117·0*	75·6*	86·6*	45·5*	4·4
			560	**578**	**636**		**751**	**809**	**867**	**885**	**943**	**1001**
N.			*53·1*	*63·8*	22·7	*346·8*	*305·7*	*264·6*	*223·5*	*234·2*	*193·1*	*152·0*
F.			67·9	78·6	37·5	−361·6	320·5	279·4	238·3	249·0	207·9	166·8
N.			*83·6*	*93·3*	*52·2*	*11·1*	*−335·2*	*−294·1*	*−253·0*	*−263·7*	*−222·6*	181·5*
N.			*230·3*	*241·0*	*199·9*	*158·8*	*117·7*	*76·6*	*35·5*	*46·2*	*5·1*	*329·2*
F.			245·1	255·8	214·7	173·6	132·5	91·4	50·3	61·0	19·9	344·0
N.			−259·8*	*−270·5*	−229·4	*188·3*	147·2	106·1	*65·0*	75·7	34·6	*−358·7*
			561	**579**	**637**	**694**	**752**	**810**	**868**	**886**	**944**	**1002**
N.			42·2*	52·9	11·8*	335·9*	294·8*	253·7*	212·6	*223·3*	182·2*	141·1*
F.			57·0	67·7	26·6	−350·7	−309·6	−268·5	−227·4	−238·1	197·0	155·9
N.			*219·4*	*230·1*	189·0*	*147·9*	*106·8*	*65·7*	*24·6*	*35·3*	−359·4	*318·3*
F.			−234·2	−244·9	−203·8	162·7	121·6	80·5	39·4	50·1	*9·0*	−323·1
			562	**580**	**638**	**695**	**753**	**811**	**869**	**887**	**945**	**1003**
N.			31·8*	42·0	0·9*	*325·0*	283·9*	*242·8*	201·7*	*212·4*	171·3	1130·2
F.			*46·1*	*56·8*	*15·7*	*−339·8*	*−298·7*	*−257·6*	*216·5*	*227·2*	186·1	145·0
F.			*193·7*	*204·4*	*163·3*	*122·2*	*81·1*	*40·0*	−364·1	9·6	*333·7*	*292·6*
N.			−208·5*	−219·2*	*178·1*	*137·0*	95·9*	54·8*	*13·7*	24·4*	−348·5	−07·4
F.			5·6	16·3	340·5	299·4	258·3	217·2	*176·1*	*186·8*	*145·7*	4·6
			563	**581**		**696**	**754**	**812**	**870**	**888**	**946**	**1004**
N.			*20·4*	*31·1*	*−355·3*	−314·2*	*−273·1*	−232·0*	*190·9*	201·6*	160·5	119·4*
F.			182·8	193·5	152·4	111·3	70·2	29 1	−353·2	−363·9	322·8	281·7
N.			197·6*	208·3	167·2*	126·1	85·0	43·9*	2·8	13·5*	*−337·6*	−296·5*
N.			345·2	−355·9	*314·8*	273·7	*232·6*	*191·5*	*150·4*	*161·1*	*120·0*	*78·9*
F.			−360·0	5·5	329·6	288·5	247·4	266·3	165·2	175·9	134·8	93·7
			564	**582**	**639**	**697**	**755**	**813**	**871**	**889**	**947**	**1005**
N.			*9·5*	*20·2*	*−344·3*	*−303·2*	*−262·1*	*−221·0*	*179·9*	*190·6*	*149·5*	*108·4*
N.			*157·2*	*167·9*	*126·8*	*85·7*	*44·6*	3·5*	*327·6*	*338·3*	*297·2*	*256·1*
F.			172·0	182·7	141·6	100·5	59 4	18·3	342·4	−353·1	312·0	270·9
N.			186·7	*197·4*	*156·3*	115·2	*74·1*	*33·0*	*−357·1*	*2·6*	*−326·7*	*−285·6*
N.			334·3	345·0	303·9*	262·8*	221·7*	180·6	139·5	150·2*	109·1*	68·0
F.			−349·1	−359·8	−318·7	−277·6	−236·5	195·4	154·3	165·0	123·9	82·8
			565	**583**	**641**	**699**	**757**	**814**	**872**	**890**	**948**	**1006**
N.			*146·2*	156·9*	*115·8*	74·7	33·6*	*−357·8*	316·7*	327·4	*286·3*	*245·2*
F.			161·0	171·7	130·6	89·5	48·4	7·3	*−331·5*	*−342·2*	−301·3	−260·0
N.			323·5*	334·2*	*293·1*	252·0*	*210·9*	169·8*	128·7*	139·4*	98·3*	57·2*
F.			*−338·3*	*−349·0*	*−307·9*	*−266·8*	*−225·7*	*184·6*	143·5	154·2	*113·1*	*72·0*

Cycles of recurrence of Eclipses—Solar and Lunar—cont.

	0	1038	1096	1153	1211	1229	1287	1345	1403	1461	1519	1537	1595	1653	1710	1768	1826	1884	1902	1960
		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
		68·8	22·7	346·8	305·7	316·4	275·3	234·1	193·1	152·0	110·9	121·6	80·5	39·4	363·6	322·4	281·3	240·2	250·9	209·8
Cyclic variation: add algebraically to fig. in col. 2		−·02	−·11	−·19	−·28	+·19	+·11	+·02	−·06	−·15	−·23	+·24	+·16	+·07	+·00	−·08	−·17	−·25	+·22	+·14

Sun from node	Successive differences	Yrs. Dys. +58 −41·1 (23)	(24)	(25)	(26)	Yrs. Dys. +18 +10·7 (27)	(28)	(29)	(30)	(31)	Yrs. Dys. +58 −41·1 (32)	Yrs. Dys. +18 +10·7 (33)	(34)	(35)	(36)	(37)	(38)	(39)	Yrs. Dys. +18 +10·7 (40)	Yrs. Dys. +58 −41·1 (41)
	A.D. 20	**1058**	**1116**	**1174**	**1232**	**1250**		**1365**	**1423**	**1481**		**1539**	**1557**	**1615**	**1673**	**1731**	**1789**		**1904**	**1922**	**1980**
F. 191°·17	72·7	*136·6*	*95·5*	54·4	13·3	24·0	348·1	307·0	265·9	*224·8*	F.	*183·7*	*194·4*	*153·3*	*112·2*	71·1	*30·0*	−354·2	313·1	323·8	*282·7*
N. 175°·84	87·5	151·4*	*110·3*	69·2*	28·1*	38·8*	*−362·9*	*−321·8*	−280·7*	−239·6*	N.	198·5*	−209·2*	168·1	127·0*	85·9*	*44·8*	3·7*	*−337·8*	−336·5	*−297·4*
F. 7°·15	249·9	313·8	272·7	231·6	190·5	201·2	160·1	119·0	77·9	36·8	F.	−360·9	6·4	330·5	289·4	248·3	207·2	166·1	125·0	135·7	94·6
N. 351°·82	−264·6*	−228·5*	*−287·4*	−246·3*	205·2	*215·9*	174·8	133·7*	92·6	51·5	N.	10·4*	21·1*	*−345·2*	*−304·1*	−263·0*	−221·9*	180·8*	139·7	150·4	109·3
	A.D. 21	**1059**	**1117**	**1175**			**1308**	**1366**	**1424**	**1482**		**1540**	**1558**	**1616**	**1674**	**1732**	**1790**	**1847**	**1905**	**1923**	**1981**
N. 198°·46	*47·0*	*110·9*	*69·8*	*28·7*	*−352·9*	*−363·6*	322·5	*281·4*	*240·3*	*199·2*	N.	*158·1*	*168·8*	*127·7*	*86·6*	*45·5*	*4·4*	*328·6*	*287·5*	*298·2*	*257·1*
F. 183°·13	61·8	125·7	84·6	43·5	2·4	13·1	337·3	296·2	255·1	214·0	F.	172·9	183·6	142·5	101·4	60·3	19·2	343·4	302·3	313·0	271·9
N. 167°·79	*76·6*	140·4*	*99·3*	*58·2*	*17·1*	*27·8*	*343·0*	*−310·9*	*−269·8*	−228·7*	N.	*187·6*	*198·3*	*157·2**	116·1*	*75·0*	*33·9*	*−358·1*	*−317·0*	*−327·7*	*−286·6*
N. 14°·44	*224·2*	*288·1*	*247·0*	*205·9*	*164·8*	*175·5*	*134·4*	*93·3*	*52·2*	*11·1*	N.	*335·3*	*346·0*	*304·9*	*263·8*	*222·7*	*181·6*	*140·5*	*99·4*	*110·1*	*69·0*
F. 359°·10	239·0	302·9	261·8	220·7	179·6	190·3	149·2	108·1	67·0	25·9	F.	350·1	−360·8	319·7	278·6	237·5	196·4	155·3	114·2	124·9	83·8
N. 343°·77	−233·7	*−317·6*	*−276·5*	−235·4	194·3*	205·0	*165·9*	122·8*	*81·7*	*40·6*	N.	*−364·8*	*10·3*	*−334·4*	*−293·3*	−252·2	*211·1*	170·0*	128·9	139·6	98·5
	A.D. 22	**1060**	**1118**	**1176**	**1233**	**1251**	**1309**	**1367**	**1425**	**1483**		**1541**	**1559**	**1617**	**1675**	**1733**		**1848**	**1906**	**1924**	**1982**
N. 190°·42	36·1	100·0	58·9*	17·8*	341·9	−352·6	311·5	270·4*	229·3*	188·2	N.	147·1*	*157·8*	116·7*	75·6*	34·5	−358·7*	317·6*	276·5*	287·2	246·1
F. 175°·08	50·9	114·8	73·7	32·6	−356·7	2·2	−326·3	−285·2	−244·1	−203·0	F.	161·9	172·6	131·5	90·4	49·3	8·2	−332·4	−291·3	−302·0	−260·9
N. 6°·30	*213·3*	*277·2*	236·1*	*195·0*	153·9*	*164·6*	123·5*	*82·4*	41·3	*0·2*	N.	*324·3*	335·0*	*293·9*	*252·8*	*211·7*	170·6*	129·5*	*88·4*	*99·1*	58·0*
F. 351°·06	228·1	−292·0	250·9	209·8	168·7	179·4	138·3	97·2	56·1	*15·0*	F.	−339·1	−349·8	−308·7	−267·6	−226·5	185·4	144·3	103·2	113·9	72·8
	A.D. 23	**1061**	**1119**	**1177**	**1234**	**1252**	**1310**	**1368**	**1426**	**1484**		**1542**	**1560**	**1618**	**1676**	**1734**	**1791**	**1849**	**1907**	**1925**	**1983**
N. 182°·37	*25·3*	89·1*	48·0*	*6·9*	331·1*	341·8*	300·7	259·6	*218·5*	177·4*	N.	136·3*	147·0*	*105·9*	64·8*	23·7*	*347·8*	306·7*	*265·6*	276·3*	235·2
F. 167°·03	*40·0*	*103·9*	*62·8*	*21·7*	*−345·9*	*−356·6*	*−315·5*	*−274·4*	*−233·3*	192·2	F.	151·1	161·8	120·7	79·6	*38·5*	*−362·6*	*−321·5*	*−280·4*	*−291·1*	*−250·0*
F. 13°·68	*187·7*	*251·5*	*210·4*	*169·3*	*128·2*	*138·9*	*97·8*	*56·7*	15·6	*339·8*	F.	*298·7*	*309·4*	*268·3*	*227·2*	*186·1*	*145·0*	*103·9*	*62·8*	*73·5*	*32·4*
N. 358°·35	*202·5*	*266·3*	*225·2*	184·1	143·0*	153·7	112·6	71·5*	*30·4*	−354·6	N.	−313·5	−324·2*	*−283·1*	−242·0*	*200·9*	159·8*	118·7	77·6	88·3	47·2
F. 189°·66	364·9	63·5	22·4	346·5	305·4	316·1	275·0	233·9	*192·8*	151·7	F.	110·6	121·3	80·2	39·1	−363·3	322·2	281·1	240·0	250·7	*209·6*
	A.D. 24	**1062**	**1120**		**1235**	**1253**	**1311**	**1369**	**1427**	**1485**		**1543**	**1561**	**1619**	**1677**	**1735**	**1792**	**1850**	**1908**	**1926**	**1984**
N. 174°·32	14·4*	78·3	*37·2*	361·3*	*−320·2*	*−330·9*	*−289·8*	−248·7*	207·6	166·5*	N.	*125·4*	136·1*	95·0*	53·9*	*12·8*	−336·9*	*−295·8*	−254·7	*−265·4*	*−224·3*
F. 5°·64	176·7	240·6	199·5	158·4	117·3	128·0	86·9	45·8	4·7	328·9	F.	287·8	298·5	257·4	216·3	175·2	134·1	93·0	51·9	62·6	21·5
N. 350°·30	191·5	*−255·4*	214·3*	173·2*	132·1*	142·8	101·7*	60·6	19·5	−318·7*	N.	302·6*	*−315·3*	*−272·2*	−231·1	190·0*	148·9*	107·8	66·7*	77·4	*36·3*
N. 196°·95	*339·2*	37·8	362·0	320·9	*279·8*	290·5*	*249·4*	*208·3*	*167·2*	*126·1*	N.	*85·0*	*95·7*	54·6	13·5	*337·6*	296·5	*255·4*	*214·3*	*225·0*	*183·9*
F. 173°·57	354·0	52·6	11·5	335·7	294·6	305·3	264·2	223·1	182·0	140·9	F.	99·8	110·5	69·4	28·3	−352·4	311·3	270·2	229·1	239·8	198·7
	A.D. 25	**1063**	**1121**	**1178**	**1236**	**1254**	**1312**	**1370**	**1428**	**1486**		**1544**	**1562**	**1620**	**1678**	**1736**	**1793**	**1851**	**1909**	**1927**	**1985**
N. 166°·28	*3·5*	*67·3*	*26·2*	*−350·4*	*−309·3*	*320·0*	*−278·9*	*−237·8*	196·7*	*155·6*	N.	*114·5*	*125·2*	*84·1*	*43·0*	*1·9*	*−326·0*	*−284·9*	*−243·8*	*−254·5*	*213·4*
N. 12°·93	*151·1*	*215·0*	173·9	*132·8*	*91·7*	*102·4*	*61·3*	*20·2*	344·4*	*303·3*	N.	*262·2*	*272·9*	*231·8*	*190·7*	*149·6*	*108·5*	*67·4*	*26·3*	37·0	*−361·1*	
F. 357°·59	165·9	229·8	188·7	147·6	106·5	117·2	76·1	35·0	−359·2	318·1	F.	277·0	287·7	246·6	205·5	164·4	123·3	82·2	41·1	51·8	10·7	
N. 342°·25	180·6	*−244·5*	203·4	*162·3*	121·2	*131·9*	*90·8*	*49·7*	*8·6*	*−332·8*	N.	*−291·7*	*−302·4*	*−261·3*	*−220·2*	179·1	138·0*	*96·9*	*55·8*	*66·5*	*25·4*	
N. 188°·90	328·3*	287·2*	−351·0*	309·9	268·8*	279·5	*238·4*	197·3*	156·2	115·1*	N.	74·0*	84·7	43·6*	2·5	326·6	285·5*	244·4*	203·3	214·0	*172·9*	
F. 173°·57	−343·1	41·7	0·6	324·7	283·6	294·3	−253·2	−212·1	171·0	129·9	F	88·8	99·5	58·4	17·3	−341·4	300·3	−259·2	−218·1	228·8	187·7	
	A.D. 26	**1064**	**1122**	**1180**	**1238**	**1256**	**1314**	**1372**	**1429**	**1487**		**1545**	**1563**	**1621**	**1679**	**1737**	**1795**	**1853**	**1911**	**1929**	**1986**
N. 4°·88	*140·2*	204·1*	*163·0*	121·9*	*80·8*	91·5*	50·4*	9·3	*−331·5*	*−372·4*	N.	251·3*	262·0*	*220·9*	*179·8*	138·7*	97·6*	*56·5*	*15·4*	26·1*	350·2	
F. 349°·54	155·0	218·9	177·8	136·7	95·6	106·3	65·2	*24·1*	*−348·3*	−307·2	F.	−266·1	−276·8	−235·7	194·6	153·5	112·4	71·3	*30·2*	40·9	*−365·0*	
N. 180°·86	317·4	16·1	*340·2*	299·1*	258·0*	268·7	227·6	186·5	145·4*	104·3*	N.	63·2	73·9*	32·8	−357·0*	*315·9*	274·8*	*233·7*	192·6*	203·3	162·2*	
F. 165°·52	*−332·2*	*30·9*	*−355·0*	*−313·9*	*−272·8*	*−283·5*	*−242·4*	*201·3*	160·2	*119·1*	F.	*78·0*	*88·7*	*47·6*	*6·5*	*−350·7*	*−289·6*	*−248·5*	*−207·4*	*−218·1*	*177·0*	

TABLE IV-L—*cont.*

Cycles of recurrence of Eclipses—Solar and Lunar—*cont.*

	0	Yrs. Dys. 57 324·1	Yrs. Dys. 115 283·0	Yrs. Dys. 173 241·9	Yrs. Dys. 191 252·6	Yrs. Dys. 249 211·5	Yrs. Dys. 307 170·4	Yrs. Dys. 365 129·3	Yrs. Dys. 423 88·2	Yrs. Dys. 481 47·1	Yrs. Dys. 539 6·0	Yrs. Dys. 557 16·7	Yrs. Dys. 614 340·8	Yrs. Dys. 672 299·7	Yrs. Dys. 730 258·6	Yrs. Dys. 788 217·5	Yrs. Dys. 846 176·4	Yrs. Dys. 864 187·1	Yrs. Dys. 922 146·0	Yrs. Dys. 980 104·9
Cyclic variation; add algebraically to fig. in col. 2.		−·08	−·17	−·25	+·22	+·14	+·05	−·03	−·12	−·20	−·29	+·18	+·10	+·01	−·07	−·16	−·24	+·23	+·15	+·06

Sun from node.	Successive differences.	Yrs. Dys. +58 −41·1	Yrs. Dys. +58 −41·1	Yrs. Dys. +58 −41·1	Yrs. Dys. +18 +10·7	Yrs. Dys. +58 −41·1	Yrs. Dys. +58 −41·1	Yrs. Dys. +58 −41·1	Yrs. Dys. +58 −41·1	Yrs. Dys. +58 −41·1	Yrs. Dys. +58 −41·1	Yrs. Dys. +18 +10·7	Yrs. Dys. +58 −41·1	Yrs. Dys. +58 −41·1	Yrs. Dys. +58 −41·1	Yrs. Dys. +58 −41·1	Yrs. Dys. +58 −41·1	Yrs. Dys. +18 +10·7	Yrs. Dys. +58 −41·1	Yrs. Dys. +58 −41·1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
		A.D. 27	**85**	**143**		**219**	**276**	**334**	**392**	**450**	**508**	**566**	**584**	**642**	**700**	**758**	**815**	**873**	**891**	**949**	**1007**
F.	12°·17	*114·6*	73·5	32·4	−356·5	2·0	326·1	*285·0*	*243·9*	*202·8*	*161·7*	*120·6*	*131·3*	*90·2*	*49·1*	8·0	332·2	*291·2*	*301·8*	*260·7*	*219·6*
N.	356°·83	129·5*	88·3	47·2	6·1	16·8*	−340·1*	−299·8	−258·7	−217·6	176·5*	135·4*	146·1	105·0	63·9*	22·8	−347·0*	−305·9	−316·6*	−275·5*	−234·4
F.	188°·15	291·9	250·8	209·7	168·6	179·3	138·2	97·1	56·0	14·9	339·1	298·0	308·7	267·6	226·5	185·4	144·3	103·2	113·9	72·8	31·7
N.	172°·81	−506·6	−265·5	−224·4	−183·3*	*194·0*	*152·9*	*111·8*	70·7*	*29·6*	−353·8	−312·7	−323·4	−282·3*	−241·2	200·1*	*159·0*	*118·6*	87·5*	*46·4*	
		A.D. 28	**86**	**144**	**201**		**277**	**335**	**393**	**451**	**509**	**567**	**585**	**643**	**701**	**758**	**816**	**874**	**892**	**950**	**1008**
N.	19°·46	*88·9*	*47·8*	*6·7*	*330·9*	*341·6*	*300·5*	*259·4*	*218·3*	*177·2*	*136·1*	*95·0*	*105·7*	*64·6*	*23·5*	*347·6*	*306·5*	*265·4*	*276·1*	*235·0*	*193·9*
F.	4°·12	103·7	62·6	21·5	345·7	−356·4	315·3	274·2	233·1	192·0	150·9	109·8	120·5	79·4	38·3	−362·4	321·3	280·2	290·9	249·8	208·7
N.	348°·80	118·4	77·3	36·2	−360·3	5·8	−336·0	−295·9	−247·8*	*206·7*	165·6*	124·5*	135·2*	94·1*	53·0	11·9*	−336·0*	−294·9	−305·6	−264·5	−223·4
N.	195°·43	*266·1*	*225·0*	*183·9*	*142·8*	*153·5*	*112·4*	71·3	30·2	−354·3	*313·2*	272·1	*282·8*	241·7*	*200·6*	*159·5*	*118·4*	77·3	88·0	46·9	5·8
F.	180°·10	280·9	239·8	198·7	157·6	168·3	127·2	86·1	45·0	3·9	328·0	286·9	297·6	256·5	215·4	174·3	133·2	92·1	102·8	61·7	20·6
N.	164°·76 (penumbral)	−295·6	−254·5	*213·4*	*172·3*	*183·0*	*141·9*	*100·8*	*59·7*	*18·6*	−342·7	−301·6	−312·3	−271·2	−230·1	*189·0*	*147·9*	*106·8*	*117·5*	*76·4*	*35·3*
		A.D. 29	**87**		**202**	**220**	**278**	**336**	**394**	**452**	**510**	**568**	**586**	**644**	**702**	**759**	**817**	**875**	**893**	**951**	**1009**
N.	11°·41	*78·0*	*36·9*	−361·1	*320·0*	*330·7*	*289·6*	*248·5*	*207·4*	*166·3*	*125·2*	84·1*	*94·8*	*53·7*	12·6*	336·7*	*295·6*	*254·5*	*265·2*	*224·1*	*183·0*
F.	356°·08	92·8	51·7	10·6	334·8	345·5	304·4	263·3	222·2	181·1	140·0	98·9	109·6	68·5	27·4	−351·5	310·4	269·3	280·0	238·9	197·8
N.	340°·74	*107·5*	*66·4*	*25·3*	−349·5	−360·2	−319·1	−278·0	−236·9	*195·8*	*154·7*	*113·6*	*124·3*	*83·2*	*42·1*	*1·0*	−325·1	−284·0	−294·7	−253·6	*212·5*
N.	187°·39	255·2*	214·1*	173·0	131·9*	142·6	101·5	60·4	19·3*	343·4	302·3	*261·2*	271·9*	230·8*	189·7*	148·6	107·5*	66·4*	77·1*	36·0*	−360·2
F.	172°·05	−270·0	−228·9	187·8	146·7	157·4	116·3	75·2	34·1	−358·2	−317·1	−276·0	−286·7	−245·6	−204·5	163·4	122·3	81·2	91·9	50·8	9·7
		A.D. 30	**88**	**145**	**203**	**221**	**279**	**337**	**395**	**453**	**511**	**569**	**587**	**645**	**703**	**760**	**818**	**876**	**894**	**952**	**1010**
N.	3°·36	67·1	26·0*	350·1*	*309·0*	319·7*	278·6*	*237·5*	*196·4*	155·3	*114·2*	73·1	83·8*	42·7	1·6*	*325·7*	284·6*	*243·5*	254·2*	*213·1*	*172·0*
F.	348°·03	81·9	*40·8*	−364·9	−323·8	−334·5	−293·4	−252·3	211·2	170·1	129·0	87·9	98·6	*57·5*	*16·4*	−340·5	−299·4	−258·3	−269·0	−227·9	186·8
F.	194°·68	*229·6*	*188·5*	*147·4*	*106·3*	*117·0*	*75·9*	*34·8*	−358·9	*317·8*	*276·7*	*235·6*	*246·3*	*205·2*	*164·1*	*123·0*	*81·9*	*40·8*	*51·5*	*10·4*	*334·6*
N.	179°·34	−244·3	−203·2*	162·1*	121·0	131·7	90·6	49·5*	*8·4*	−332·5	−291·4*	−250·3*	−261·0	−219·9*	*178·8*	137·7*	96·6*	*55·5*	66·2*	25·1*	−349·3
		A.D. 31	**89**	**146**	**204**	**222**	**280**	**338**	**396**	**454**	**512**	**570**	**588**	**646**		**761**	**819**	**877**	**895**	**953**	**1011**
F.	10°·65	41·5	0·4	324·6	283·5	294·2	*253·1*	*212·0*	*170·9*	*129·8*	88·7	47·5	58·2	17·1	341·2	300·1	*259·0*	*217·9*	*228·6*	*187·5*	*146·4*
N.	355°·32	56·2*	15·1	−339·3	−298·2	−308·9*	−267·8	−226·7	*175·6*	144·5*	103·4*	62·2	72·9*	31·8*	−355·9	−314·8*	−273·7	−232·6*	−243·3*	*202·2*	161·1
F.	186°·63	218·7	177·6	136·5	95·4	106·1	65·0	23·9	345·0	306·9	265·8	224·7	235·4	194·3	153·2	112·1	71·0	29·9	40·6	−364·7	323·6
N.	171°·29	−233·4	*192·3*	151·2*	110·1*	*120·8*	*79·7*	*38·6*	−362·7	−321·6	−280·5	−239·4	−250·1	*209·0*	167·9*	*126·8*	*85·7*	44·6*	*55·3*	*14·2*	−338·3
		A.D. 32		**147**	**205**	**223**	**281**	**339**	**397**	**455**	**513**	**571**	**589**		**704**	**762**	**820**	**878**	**896**	**954**	**1012**
N.	17°·94	*15·8*	*332·9*	*298·8*	*257·7*	*268·4*	*227·3*	*186·2*	*145·1*	*104·0*	*62·9*	*21·8*	*32·5*	−356·6	*315·5*	*274·4*	*233·3*	*192·2*	*202·9*	*161·8*	*120·7*
F.	2°·61	30·6	−354·6	313·5	272·4	283·1	242·0	200·9	159·8	118·7	77·6	36·5	47·2	6·1	330·2	289·1	248·0	206·9	217·6	176·5	135·4
N.	347°·27	45·4	4·2	−328·3	−287·2	−297·9	−256·7	215·6*	*174·5*	133·5*	92·4*	51·3	62·0*	*20·9*	−345·0*	−303·9*	−262·8*	−221·8	−232·5	*191·4*	150·3*
N.	193°·92	*193·0*	151·9	110·8	69·7	80·4	39·3	−363·4	322·3	*281·2*	240·1	*199·0*	209·7*	168·6*	127·5*	86·4	45·3*	4·1	14·8*	338·9*	297·8
F.	178°·58	207·8	166·7	125·6	84·5	95·2	54·1	13·0	337·1	296·0	255·9	213·8	224·5	183·3	142·3	101·2	60·1	19·0	29·7	−353·8	312·7
N.	163°·25	−222·5	*181·4*	*140·3*	*99·2*	*109·9*	*68·8*	*27·7*	−351·8	−310·7	−269·6	−228·5	−239·2	*198·1*	*157·0*	*115·9*	*74·8*	*33·7*	*44·4*	*3·3*	−327·4
		A.D. 33	**90**	**148**	**206**	**224**	**282**	**340**	**398**	**456**	**514**	**572**	**590**	**647**	**705**	**763**	**821**	**879**	**897**	**955**	**1013**
N.	9°·90	4·9*	*329·0*	*287·9*	*246·8*	*257·5*	*216·4*	*175·3*	134·2	*93·1*	52·0*	*10·9*	*21·6*	345·7*	304·6*	*263·5*	*222·4*	*181·3*	*192·0*	*150·9*	*109·8*
F.	354°·56	19·7	−343·7	−302·6	−261·5	−272·2	−231·1	190·0	148·9	107·8	66·7	25·6	36·3	−360·4	−319·3	−278·2	−237·1	196·0	206·7	165·6	124·5
N.	185°·87	182·1*	141·0	99·9*	58·8*	69·5	28·4	−352·5*	311·4	270·3	229·2	188·1*	198·8*	157·7*	116·6	75·5*	34·4*	−358·5	−349·8	328·1	287·0*
F.	170°·54	196·9	155·7	114·6	73·5	84·2	43·1	2·0	−326·1	−285·0	−243·9	−202·8	−213·5	172·4	131·3	90·2	49·1	8·0	18·7	−342·8	−301·7
N.	1°·85	−359·3*	318·2*	277·1	*236·0*	248·7	205·6*	*164·5*	123·4*	*82·3*	*41·2*	0·1*	10·8	334·9*	*293·8*	252·7*	*211·6*	170·5*	*181·2*	140·1	99·0*
F.	346°·52	*8·8*	−332·9	−291·8	−250·7	−261·4	−220·3	179·2	*138·1*	*97·0*	*55·9*	*14·8*	*25·5*	−349·6	−308·5	−267·4	−226·3	185·2	195·9	*154·8*	113·7

Cycles of recurrence of Eclipses—Solar and Lunar—cont.

	0	1038	1096	1153	1211	1229	1287	1345	1403	1461
		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
		63 5	22 7	346 8	205 7	310 4	276 3	234 1	196 1	152 0
Cyclic variation; add algebraically to fig. in col. 2		−·02	−·11	−·19	−·28	+·19	+·11	+·02	−·06	−·15
Sun from node.	Successive differences.	Yrs. Dys. +58 −41·1 (23)	Yrs. Dys. +58 −41·1 (24)	Yrs. Dys. +58 −41·1 (25)	Yrs. Dys. +58 −41·1 (26)	Yrs. Dys. +18 +107 (27)	Yrs. Dys. +58 −41·1 (28)	Yrs. Dys. +58 −41·1 (29)	Yrs. Dys. +58 −41·1 (30)	Yrs. Dys. +55 −41·1 (31)
	A.D. 27	**1065**	**1123**	**1181**	**1239**	**1257**	**1315**		**1430**	**1488**
F. 12°·17		*114·6*	*178·5*	*157·4*	*96·3*	*55·2*	*65·9*	24·8	*307·8*	*266·7*
N. 556°·83		129·3°	*193·5*	152·2°	111·1	70·0°	80·7	39·6°	−368·7°	−322·6
F. 185°·15		291·9	−355·8	314·7	278·6	237·5	243·2	202·1	161·0	119·9
N. 172°·81		−306·6	*5·3*	−329·4	−288·3	−247·2°	−257·9	216·8°	175·7°	134·6°
	A.D. 28	**1066**	**1124**	**1182**	**1240**	**1258**		**1373**	**1431**	**1489**
N. 19°·46		*88·9*	*152·8*	*111·7*	*70·6*	*29·5*	*40·2*	−364·5	*325·2*	*284·1*
F. 4°·12		103·7	167·6	126·5	85·4	44·3	55·0	13·9	338·0	296·9
N. 348°·80		118·4	182·3°	141·2°	100·1	59·0°	69·7°	28·6	−352·7°	−311·6°
N. 195°·43		*266·1*	330·0	288·9	*247·8*	206·7	*217·4*	*176·3*	135·2	94·1
F. 180°·10		280·9	344·8	303·7	262·6	221·5	232·2	191·1	150·0	108·9
N. 164°·76		−295·6	−359·5	−318·4	−277·3	−236·2	−246·9	*205·8*	*164·7*	*123·6*
	A.D. 29	**1067**	**1125**	**1183**	**1241**	**1259**	**1316**	**1374**	**1432**	**1490**
N. 11°·41		*78·0*	*141·9*	*100·8*	59·7°	*18·6*	*29·3*	−353·4	312·3°	*271·2*
F. 356°·08		92·8	156·7	115·6	74·5	33·4	44·1	3·0	327·1	286·0
N. 340°·74		*107·5*	*171·4*	*130·3*	*89·2*	*48·1*	*58·8*	*17·7*	−341·8	−300·7
N. 187°·39		255·2°	319·1°	278·0	236·9°	195·8°	206·5	165·4°	124·3°	83·2
F. 172°·05		−270·0	−333·9	−292·8	−251·7	−210·6	−221·3	180·2	139·1	98·0
	A.D. 30	**1068**	**1126**	**1184**	**1242**	**1260**	**1317**	**1375**	**1433**	**1491**
N. 3°·36		67·1	*130·9*	89·8°	*48·7*	*7·6*	18·3°	342·4	*301·3*	*260·2*
F. 348°·03		81·9	145·7	104·6	*63·5*	*22·4*	*33·1*	−357·2	−316·1	−275·0
F. 194°·68		*229·6*	*293·5*	*252·4*	*211·3*	*170·2*	*180·9*	*139·8*	*98·7*	*57·6*
N. 179°·34		−244·3	−308·2	−267·1	−226·0°	184·9°	195·6°	*154·5*	113·4°	72·3°
	A.D. 31	**1069**	**1127**	**1185**		**1260**	**1318**	**1376**	**1434**	**1492**
F. 10°·65		41·5	105·3	64·2	23·1	347·2	−357·9	316·8	275·6	234·5
N. 355°·32		56·2°	120·0°	78·9	37·8°	−361·9°	7·1°	−331·5°	−290·3°	−249·2
F. 185°·63		218·7	282·5	241·4	200·3	159·2	169·9	128·8	87·7	46·6
N. 171°·29		−235·4	−297·2	−256·1	215·0°	*173·9*	184·6°	143·5°	102·4°	*61·3*
	A.D. 32	**1070**	**1128**		**1243**	**1261**	**1319**	**1377**	**1435**	**1493**
N. 17°·94		*15·8*	*79·6*	*38·5*	−362·6	*321·5*	*332·2*	*291·1*	*250·0*	*208·9*
F. 2°·61		30·6	94·3	53·2	12·1	336·2	346·9	305·8	264·7	223·6
N. 347°·27		45·4	109·2°	68·1	27·0	351·0	−361·7	−320·6°	−279·5°	238·4°
N. 193°·92		*195·0*	256·7	*215·6*	*174·5*	133·4	144·1°	103·0	61·9°	20·8
F. 178°·58		207·8	271·6	230·5	189·4	148·3	159·0	117·9	76·8	35·7
N. 163°·25		−222·5	−286·3	−245·2	*204·1*	*163·0*	*173·7*	*132·6*	*91·4*	*50·3*
	A.D. 33	**1071**	**1129**	**1186**	**1244**	**1262**	**1320**	**1378**	**1436**	**1494**
N. 9°·90		4·9°	*68·7*	27·6°	−351·7	*310·6*	*321·3*	*280·2*	*239·1*	*198·0*
F. 351°·56		19·7	83·4	42·3	1·2	−325·3	−336·0	−294·9	−253·8	−212·7
N. 185°·87		182·1°	245·9	204·8°	163·7°	122·6°	133·3	92·2°	51·1	10·0
F. 170°·54		196·9	−260·6	−219·5	178·4	137·3	148·0	106·9	65·8	24·7
N. 1°·85		−359·3°	57·9	*16·8*	340·9°	299·8°	310·5	*269·4*	*228·3*	187·2°
F. 346°·52		*8·8*	*72·6*	*31·5*	−355·6	−314·5	−325·2	−284·1	−243·0	201·9

	1519	1537	1595	1653	1710	1768	1826	1884	1902	1960
	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
	110·9	121·6	80·5	3·4	253·6	322·4	281·3	240·2	250·9	209·8
Cyclic variation; add algebraically to fig. in col. 2	−·23	+·24	+·16	+·07	+·00	−·08	−·07	−·25	+·22	+·14
	Yrs. Dys. +58 −41·1 (32)	Yrs. Dys. +18 +107 (33)	Yrs. Dys. +58 −41·1 (34)	Yrs. Dys. +58 −41·1 (35)	Yrs. Dys. +58 −41·1 (36)	Yrs. Dys. +58 −41·1 (37)	Yrs. Dys. +58 −41·1 (38)	Yrs. Dys. +58 −41·1 (39)	Yrs. Dys. +18 +107 (40)	Yrs. Dys. +58 −41·1 (41)
	1546	**1564**	**1622**	**1680**	**1738**	**1796**	**1854**		**1930**	**1987**
F.	*225·6*	*236·3*	*195·2*	*154·1*	*113·0*	71·9	30·8	−354·9	0·4	*324·5*
N.	−240·4°	−251·1	−210·0°	*168·9*	127·8°	86·7°	*45·6*	4·5	*15·2*	−339·8°
F.	87·7	48·4	7·3	331·4	290·3	249·2	208·1	167·0°	177·7	136·6
N.	52·4°	*63·1*	*22·0*	−346·1	−305·0	−263·9	−222·8	181·7	*162·4*	151·3
	1547	**1565**	**1623**	**1681**	**1739**	**1797**	**1855**	**1912**		**1988**
N.	*199·9*	*210·6*	*169·5*	*128·4*	*87·3*	*46·2*	*5·1*	*329·2*	*339·9*	*298·8*
F.	214·7	225·4	184·3	143·2	102·1	61·0	19·9	344·0	−354·7	313·6
N.	−229·4	−240·1	*199·0*	157·9°	116·8	75·7	34·6°	−358·7	*4·2*	*−328·3*
N.	11·9	22·6	346·7°	*305·6*	264·5°	*223·4*	*182·3*	*141·2*	*151·9*	*110·8*
F.	26·7	37·4	−361·5	320·4	279·3	238·2	197·1	156·0	166·7	125·6
N.	*41·4*	*52·1*	*11·0*	−355·1	−294·0	−252·9	*211·8*	*170·7*	*181·4*	*140·3*
	1548	**1566**	**1624**	**1682**	**1740**	**1798**		**1913**	**1931**	**1989**
N.	*189·0*	*199·7*	*158·6*	*117·5*	76·4	*35·1*	−359·5	*318·4*	*329·1*	*288·0*
F.	203·8	214·5	173·4	132·3	91·2	50·1	9·0	333·2	343·9	302·8
N.	−218·5	−229·2	*188·1*	147·0	*105·9*	*64·8*	*23·7*	−347·9	−358·6	−317·5
N.	1·0°	11·7°	*335·8*	294·7	253·6	212·5°	171·4°	130·3°	*141·0*	99·9°
F.	15·8	26·5	−350·6	−309·6	−268·4	−227·3	186·2	145·1	155·8	114·7
	1549	**1567**	**1625**	**1683**	**1741**	**1799**	**1856**	**1914**	**1932**	**1990**
N.	178·0°	*188·7*	*147·6*	106·5°	65·4°	24·3°	*348·4*	307·3	318·0	*276·9*
F.	192·0	202·5	162·4	121·3	*80·2*	*39·1*	−365·2	−324·1	−332·8	−291·7
F.	*340·6*	−351·3	*310·2*	*269·1*	*228·8*	*186·9*	*145·8*	*104·7*	*115·4*	*74·3*
N.	−355·3°	0·7	−324·9°	−283·8	−242·7°	*201·6*	160·5°	119·4	130·1°	*89·0*
	1550	**1568**	**1626**	**1684**	**1742**	**1789**	**1857**	**1915**	**1933**	**1991**
F.	*152·3*	*163·0*	121·9	80·8	39·7	−363·9	322·8	281·6	292·3	251·2
N.	*167·0*	177·7°	136·6	95·5	54·4°	13·2°	−327·5°	−286·3	−307·0°	−265·9
F.	329·6	340·3	299·2	258·1	217·0	175·9	134·8	13·7	104·4	63·3
N.	−344·3	−355·0	−313·9	−272·8	−231·7	*190·6*	*149·5*	108·4°	119·1	78·0
	1551	**1569**	**1627**	**1685**	**1743**	**1800**	**1858**	**1916**	**1934**	**1992**
N.	*126·7*	*137·4*	*96·3*	*55·2*	*14·1*	*338·2*	*297·1*	*256·0*	*266·7*	*225·6*
F.	141·4	152·1	111·0	69·9	28·8	−352·9	311·8	270·7	281·4	240·3
N.	156·2°	*166·9*	125·8°	84·7	43·6	2·5°	−326·6	−285·5	−296·2	−255·1
N.	*303·8*	314·5°	273·4	232·3°	191·2	150·1	109·0	67·9	78·6	37·5
F.	318·7	329·4	288·3	247·2	206·0	165·0	123·8	82·7	93·5	52·4
N.	−333·3	−344·0	−302·9	−261·8	−220·7	*179·6*	*138·5*	*97·4*	*108·2*	*67·1*
	1552	**1570**	**1628**	**1686**	**1744**	**1801**	**1859**	**1917**	**1935**	**1993**
N.	*115·8*	*126·5*	*85·4*	44·3°	*3·2*	*327·3*	*286·2*	*245·1*	*255·8*	*214·7*
F.	130·5	141·2	100·1	59·0	17·9	−342·0	−300·9	−259·8	−270·5	−229·4
N.	293·0°	303·7	262·6	*221·5*	180·4°	139·3°	98·2	57·1	67·8	26·7
F.	−307·7	−318·4	−277·3	−236·2	195·1	154·0	112·9	71·8	82·5	41·4
N.	*105·0*	*115·7*	74·6°	33·5°	−357·6°	*316·5*	275·4°	234·3	*245·0*	203·9
F.	119·7	*130·4*	*89·3*	*48·2*	*7·1*	−321·2	−290·1	−249·0	−259·7	−218·6

TABLE IV-L—*cont.*

Cycles of recurrence of Eclipses—Solar and Lunar—*cont.*

	0	Yrs. Dys. 57 324·1	Yrs. Dys. 115 293·0	Yrs. Dys. 173 241·9	Yrs. Dys. 191 252·8	Yrs. Dys. 249 211·5	Yrs. Dys. 307 170·4	Yrs. Dys. 365 129·3	Yrs. Dys. 423 88·2	Yrs. Dys. 481 47·1
Cyclic variation; add algebraically to fig. in col. 2.		−·08	−·17	−·25	+·22	+·14	+·05	−·03	−·12	−·20

	Sun from node.	Successive differences.	Yrs. Dys. +58 −41·1 (4)	Yrs. Dys. +58 −41·1 (5)	Yrs. Dys. +58 −41·1 (6)	Yrs. Dys. +18 +10·7 (7)	Yrs. Dys. +58 −41·1 (8)	Yrs. Dys. +58 −41·1 (9)	Yrs. Dys. +58 −41·1 (10)	Yrs. Dys. +58 −41·1 (11)	Yrs. Dys. +58 −41·1 (12)
(1)	(2)	(3)									
		A.D. 34	**92**	**150**	**208**	**226**	**284**	**341**	**399**	**457**	**515**
F.	193°·16	*156·5*	*115·4*	*74·3*	*33·2*	*43·9*	*2·8*	*326.9*	*285·8*	*244·7*	*203·6*
N.	177°·83	171·2°	130·1	89·0	47·9	*58·6*	17·5°	*−341·6*	*−300·5*	−259·4°	−218·3°
F.	9°·14	333·6	292·5	251·4	*210·3*	*221·0*	*179·9*	138·8	97·7	56·6	15·5
N.	353°·80	*−348·4*	*−307·3*	−266·2	−225·1°	−235·8	194·7	153·6	112·5°	71·4°	30·3°
		A.D. 35	**93**	**151**	**209**	**227**		**342**	**400**	**458**	**516**
N.	200°·45	*130·8*	*89·7*	*48·6*	*7·5*	*18·2*	*342·3*	*301·2*	*260·1*	*219·0*	*177·9*
F.	185°·12	145·6	104·5	63·4	22·3	33·0	−357·1	316·0	274·9	233·8	192·7
N.	169°·79	*160·3*	*119·2*	*78·1*	*37·0*	*47·7*	*6·6*	*−330·7*	*−289·6*	*−248·5*	*207·4*
N.	16°·43	*308·0*	*266·9*	*225·8*	*184·7*	*195·4*	*154·3*	*113·2*	*72·1*	*31·0*	*−355·1*
F.	1°·09	322·8	281·7	240·6	199·5	210·2	169·1	128·0	86·9	45·8	4·7
N.	345°·76	−337·5	−296·4	−255·3	214·2	*−224·9*	183·8°	142·7	101·6	60·5°	19·4°
		A.D. 36	**94**	**152**		**228**	**285**	**343**	**401**	**459**	**517**
N.	192°·41	119·9	78·8	37·7	−361·8	7·2	331·4	290·3	*249·2*	208·1	*167·0*
F.	177°·07	134·7	93·6	52·5	11·4	22·1	34·2	305·1	264·0	229·9	181·8
N.	161°·74	*149·4*	*108·3*	*67·2*	*26·1*	*36·8*	*−366·9*	*−319·8*	*−278·7*	*−237·6*	*196·5*
N.	8°·38	*297·1*	*256·0*	*214·9*	173·8	*184·5*	*143·4*	*102·3*	61·2°	20·1°	*344·2*
F.	353°·05	−311·9	−270·7	−229·6	188·5	199·2	158·1	117·0	75·9	34·8	−358·9
		A.D. 37	**95**	**153**	**210**		**286**	**344**	**402**	**460**	**518**
N.	184°·36	109·0	67·9°	26·8	−350·9	−361·6	320·5°	279·4	238·3°	197·2	156·1°
F.	169°·03	123·8	82·6	41·5	*0·4*	*11·1*	*−335·2*	−294·1	−253·0	−211·9	170·8
N.	0°·34	286·2°	*245·1*	204·0°	162·9	173·6°	132·5	91·4	50·3°	9·2°	333·3°
F.	345°·00	*−301·0*	*−259·9*	*−218·8*	*177·7*	*188·4*	*147·3*	*106·2*	*65·1*	*24·0*	*−348·1*
		A.D 38	**96**	**154**	**211**	**229**	**287**	**345**	**403**	**461**	**519**
F.	191°·65	*83·4*	42·3	1·2	325·3	336·0	*294·9*	*253·8*	*212·7*	*171·6*	*130·5*
N.	176°·31	98·1°	57·0	15·9	*−340·0*	*−350·7*	*−309·6*	*−268·5*	−227·4	186·3°	145·2°
F.	7°·63	260·6	219·5	178·4	137·3	148·0	106·9	65·8	24·7	348·8	307·7
N.	352°·29	*−275·3* (America)	−234·2	193·1°	152·0°	162·7	121·6°	80·5°	39·4	−363·5°	−322·4
		A.D 39	**97**		**212**	**230**	**288**	**346**	**404**	**462**	**520**
N.	198°·94	*57·7*	16·6	*340·7*	*299·6*	*310·3*	*269·2*	*228·1*	*187·0*	*145·9*	*104·8*
F.	183°·60	72·5	31·4	−355·5	314·4	325·1	284·0	242·9	201·8	160·7	119·6
N.	168°·27	*87·2*	*46·1*	*5·0*	*−329·1*	*−339·8*	*−298·7*	*−257·6*	*216·5*	*175·4*	*134·3*
N.	14°·92	*234·9*	*193·8*	*152·7*	*111·6*	*122·3*	*81·2*	*40·1*	*−364·2*	*323·1*	*282·0*
F.	358°·58	249·7	208·6	167·5	126·4	137·1	96·0	54·9	13·8	337·9	296·8
N.	344°·25	−264·4	*−223·3*	182·2	141·1	151·8	110·7	*69·6*	28·5	*−342·6*	*−311·5*
		A.D. 40	**98**	**155**	**213**	**231**	**289**	**347**	**405**	**463**	**521**
N.	190°·89	46·8	5·7	329·8	*288·7*	299·4	258·3	217·2	176·1	135·0	93·9°
F.	175°·56	61·6	20·5	344·6	303·5	314·2	273·1	232·0	190·9	149·8	108·7
N.	160°·22	*76·4*	*35·3*	*−359·4*	*−318·3*	*−329·0*	*−287·9*	*−246·8*	*205·7*	*164·8*	*123·5*
N.	6°·87	*224·0*	*182·9*	*141·8*	100·7°	*111·4*	70·3	29·2°	353·3	*312·2*	271·1°
F.	351°·53	−238·8	197·7	156·6	115·5	126·2	85·1	44·0	−368·1	−327·0	−285·9

	Yrs. Dys. 539 60	Yrs. Dys. 557 16·7	Yrs. Dys. 614 340·8	Yrs. Dys. 672 299·7	Yrs. Dys. 730 258·6	Yrs. Dys. 788 217·5	Yrs. Dys. 846 176·4	Yrs. Dys. 864 187·1	Yrs. Dys. 922 146·0	Yrs. Dys. 980 104·9
Cyclic variation; add algebraically to fig. in col. 2.	−·29	+·18	+·10	+·01	−·07	−·16	−·24	+·23	+·15	+·06

	Yrs. Dys. +58 −41·1 (13)	Yrs. Dys. +18 +10·7 (14)	Yrs. Dys. +58 −41·1 (15)	Yrs. Dys. +58 −41·1 (16)	Yrs. Dys. +58 −41·1 (17)	Yrs. Dys. +58 −41·1 (18)	Yrs. Dys. +58 −41·1 (19)	Yrs. Dys. +18 +10·7 (20)	Yrs. Dys. +58 −41·1 (21)	Yrs. Dys. +58 −41·1 (22)
	573	**591**	**649**	**707**	**765**	**823**	**880**	**898**	**956**	**1014**
F.	*162·5*	*173·2*	*132·1*	*91·0*	49·9	*8·8*	332·9	*343·6*	302·5	*261·4*
N.	177·2°	187·9°	146·8	105·7°	64·6	*23·5*	*−347·6*	−358·3°	*−317·2*	*−276·1*
F.	339·6	350·3	309·2	268·1	*227·0*	185·9	144·8	155·5	*114·4*	73·3
N.	−354·4°	−365·1°	−324·0	−282·9°	*−241·8*	200·7°	159·6	*170·3*	129·2	88·1°
	574	**592**	**650**	**708**	**766**		**881**	**899**	**957**	**1015**
N.	*136·8*	*147·5*	*106·4*	*65·3*	*24·2*	*348·3*	*307·2*	*317·9*	*276·8*	*235·7*
F.	151·6	162·3	121·2	80·1	39·0	−363·1	322·0	332·7	291·8	250·5
N.	166·3°	*177·0*	135·9°	*84·8*	*53·7*	*12·6*	*−336·7*	*−347·4*	*−306·3*	*265·2*
N.	*314·0*	*324·7*	*283·6*	*242·5*	*201·4*	*160·3*	*119·2*	*129·9*	*88·8*	*47·7*
F.	328·8	339·5	298·4	257·3	216·2	175·1	134·0	144·7	103·6	62·5
N.	*−343·5*	*−354·2*	−313·1°	−272·0	−230·9°	189·8°	148·7	*159·4*	118·3°	77·2
	575	**593**	**651**	**709**	**767**	**824**	**882**	**900**	**958**	**1016**
N.	125·9	136·6	95·5	54·4°	13·3°	*337·4*	*296·3*	307·0	265·9°	224·8
F.	140·7	151·4	110·3	69·2	28·1	−352·2	311·1	321·8	280·7	239·6
N.	*155·4*	*166·1*	*125·0*	*83·9*	*42·8*	*1·7*	*−324·8*	−336·5°	*−294·4*	*−254·3*
N.	*303·1*	313·8°	272·7°	*231·6*	*190·5*	*149·4*	108·3°	*119·0*	77·9°	*36·8*
F.	−317·8	−328·5	−287·4	−246·3	−205·2	164·1	123·0	133·7	92·6	51·5
	576	**594**	**652**	**710**	**768**	**825**	**883**	**901**	**959**	**1017**
N.	115·0°	125·7°	84·6	43·5	2·4°	*326·5*	285·4°	296·1	255·0	213·9
F.	129·7	140·4	99·8	58·2	*17·1*	*−341·2*	−300·1	−310·8	*−269·7*	*−228·6*
N.	292·2°	302·9°	*261·8*	220·7°	*179·6*	138·5°	97·4	108·1°	67·0	25·9
F.	*−307·0*	*−317·7*	*−276·6*	*−235·5*	*194·4*	*153·3*	*112·2*	*122·9*	*81·8*	*40·7*
	577	**595**	**653**	**711**		**826**	**884**	**902**	**960**	**1018**
F.	*89·4*	*100·1*	59·0	17·9	342·0	300·9	259·8	270·5	*229·4*	*188·3*
N.	*104·1*	114·8	73·7°	*32·6*	*−356·7*	*−315·6*	−274·5°	*−285·2*	*−244·1*	*−203·0*
F.	266·6	277·3	236·2	195·1	154·0	112·9	71·8	82·5	41·4	0·3
N.	−281·3°	−292·0	−250·9°	209·8	168·7°	127·6	86·5°	97·2	56·1°	15·0°
	578	**596**	**654**		**769**	**827**	**885**	**903**	**961**	**1019**
N.	*63·7*	*74·4*	*33·3*	*−357·4*	*316·3*	*275·2*	*234·1*	*244·8*	*203·7*	*162·6*
F.	78·5	89·2	48·1	7·0	331·1	290·0	248·9	259·6	218·5	177·4
N.	*93·2*	*103·9*	*62·8*	*21·7*	*−345·8*	*−304·7*	*−263·6*	*−274·3*	*−233·2*	*192·1*
N.	*240·9*	*251·6*	*210·5*	*169·4*	*128·3*	*87·2*	*46·1*	*56·8*	*15·7*	*339·8*
F.	255·7	266·4	225·3	184·2	143·1	102·0	60·9	71·6	30·5	−354·6
N.	*−270·4*	−281·1°	*−240·0*	198·9	157·8°	116·7	75·6	86·3	*45·2*	*4·1*
	579	**597**	**655**	**712**	**770**	**828**	**886**	**904**	**962**	**1020**
N.	52·8	63·5	2·4°	46·5	*305·4*	*264·3*	*223·2*	233·9°	192·8	151·7
F.	67·6	78·3	37·2	−361·3	320·2	279·1	238·0	248·7	207·6	166·5
N.	*82·4*	*93·1*	*52·0*	*10·9*	*−335·0*	*−293·9*	*−252·8*	*−263·5*	*−222·4*	*181·3*
N.	*250·0*	*240·7*	*199·6*	*158·5*	*117·4*	76·3°	*35·2*	45·9°	*4·8*	*328·9*
F.	−244·8	−255·5	−214·4	173·3	132·2	91·1	50·0	60·7	19·6	−343·7

Cycles of recurrence of Eclipses—Solar and Lunar—cont.

	0	1038	1096	1153	1211	1229	1287	1345	1403	1461	1519	1537	1595	1653	1710	1768	1826	1884	1902	1960
		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
		68·8	22·7	346·8	305·7	316·4	275·8	234·1	198·1	152·0	110·9	121·6	80·5	39·4	363·6	322·4	281·3	240·2	250·9	209·8
Cyclic variation; add algebraically to fig. in col. 2.		−·02	−·11	−·19	−·28	+·19	+·11	+·02	−·06	−·15	−·23	+·24	+·16	+·07	+·00	−·08	−·17	−·25	+·22	+·14

Sun from node.	Successive differences.	Yrs. Dys. +58 −41·1 (23)	Yrs. Dys. +58 −41·1 (24)	Yrs. Dys. +58 −41·1 (25)	Yrs. Dys. +58 −41·1 (26)	Yrs. Dys. +18 +10·7 (27)	Yrs. Dys. +58 −41·1 (28)	Yrs. Dys. +58 −41·1 (29)	Yrs. Dys. +58 −41·1 (30)	Yrs. Dys. +58 −41·1 (31)		Yrs. Dys. +58 −41·1 (32)	Yrs. Dys. +18 +10·7 (33)	Yrs. Dys. +58 −41·1 (34)	Yrs. Dys. +58 −41·1 (35)	Yrs. Dys. +58 −41·1 (36)	Yrs. Dys. +58 −41·1 (37)	Yrs. Dys. +58 −41·1 (38)	Yrs. Dys. +58 −41·1 (39)	Yrs. Dys. +18 +10·7 (40)	Yrs. Dys. +58 −41·1 (41)
	A.D. 34	**1072**	**1130**	**1188**	**1246**	**1264**	**1322**	**1380**	**1437**	**1495**		**1553**	**1571**	**1629**	**1687**	**1745**	**1803**	**1861**	**1919**	**1937**	**1995**
F.	193°·16	*156·5*	*220·3*	*179·2*	*138·1*	*97·0*	*107·7*	*66·6*	*25·5*	349·6	308·5	F.	*267·4*	*278·1*	*237·0*	*195·9*	*154·8*	*113·7*	*72·6*	*31·5*	*42·2*	1·1
N.	177°·83	171·2*	*−235·0*	193·9*	152·8*	111·7	*122·4*	81·3	40·2*	*−364·3*	−323·2*	N.	*−292·1*	−292·8*	−251·7	−210·6*	*169·5*	128·4*	87·3*	46·2	*56·9*	15·8
F.	9°·14	333·6	32·2	−356·3	315·2	274·1	284·8	243·7	202·6	161·5	120·4	F.	79·3	90·0	48·9	7·8	331·9	290·8	249·7	208·6	219·3	*178·2*
N.	353°·80	*−348·4*	47·0*	5·9	−330·0*	−288·9	−299·6*	−258·5*	*217·4*	176·3*	135·2	N.	94·1	104·8*	63·7	22·6*	−346·7*	−305·6*	−264·5	−223·4	−234·1	195·0*
	A.D. 35	**1073**	**1131**	**1189**	**1247**	**1265**	**1323**		**1438**	**1496**		**1554**	**1572**	**1630**	**1688**	**1746**	**1804**	**1862**	**1920**	**1938**	
N.	200°·45	*130·8*	*194·6*	*153·5*	*112·4*	*71·3*	*82·0*	*40·9*	*−365·0*	*323·9*	*282·8*	N.	*241·7*	*252·4*	*211·3*	*170·2*	*129·1*	*88·0*	*46·9*	*5·8*	*16·5*	*340·6*
F.	185°·12	145·6	209·4	168·3	127·2	86·1	96·8	55·7	14·6	338·7	297·6	F.	256·5	267·2	226·1	185·0	143·9	102·8	61·7	20·6	31·3	−355·4
N.	169°·79	*160·3*	*−224·1*	183·0*	*141·9*	100·8*	*111·5*	*70·4*	*29·3*	*−353·4*	*−312·3*	N.	*−271·2*	*−281·9*	−240·8*	*199·7*	*158·6*	*117·5*	*76·4*	*35·3*	*46·0*	*4·9*
N.	18°·43	*308·0*	*6·6*	*330·7*	*289·6*	*248·5*	*259·2*	*218·1*	*177·0*	*135·9*	*94·8*	N.	*53·7*	*64·4*	*23·2*	*347·4*	*306·3*	*265·2*	*224·1*	*183·0*	*193·7*	*152·6*
F.	1°·09	322·8	21·4	345·5	304·4	263·3	274·0	232·9	191·8	150·7	109·6	F.	68·5	79·2	38·1	−362·2	321·1	280·0	238·9	197·8	208·5	167·3
N.	345°·76	−337·5	36·1*	−360·2	−319·1	*−278·0*	−288·7*	−247·6	206·5*	*165·4*	124·3*	N.	83·2*	93·9	52·8*	*11·7*	−335·8	*−294·7*	−253·6*	212·5	−223·2	182·1
	A.D. 36	**1074**	**1132**	**1190**	**1248**	**1266**	**1324**	**1381**	**1439**	**1497**		**1555**	**1573**	**1631**	**1689**	**1747**	**1805**	**1863**		**1939**	**1996**
N.	192°·41	119·0	183·7	*142·6*	101·5*	60·4*	71·1	30·0*	*−354·0*	312·9	*271·8*	N.	230·7*	241·4	200·3*	159·2	118·1	77·0*	35·9	−360·1	5·6	329·7*
F.	177°·07	134·7	198·5	157·4	116·3	75·2	85·9	44·8	3·6	327·7	286·6	F.	245·5	256·2	215·1	174·0	132·9	91·8	50·7	9·6	20·3	*344·4*
N.	161°·74	*149·4*	*213·2*	*172·1*	*131·0*	*89·9*	*100·6*	*59·5*	*18·3*	*−342·4*	*−301·3*	N.	*−260·2*	*−270·9*	*−229·8*	*188·7*	147·6*	*106·5*	*65·4*	*24·3*	*35·0*	*−359·1*
N.	8°·38	*297·1*	−360·9*	*319·8*	*278·7*	*237·6*	*248·3*	*207·2*	*166·1*	*125·0*	*83·9*	N.	42·8*	*53·5*	12·4*	*336·5*	*295·4*	*254·3*	*213·2*	172·1	*182·8*	*141·7*
F.	353°·05	−311·9	10·4	−334·5	−293·4	−252·3	−263·0	−221·9	180·8	39·7	98·6	F.	57·5	68·2	27·1	−351·2	−310·1	−269·0	−227·9	186·8	197·5	156·4
	A.D. 37	**1075**	**1133**	**1191**	**1249**	**1267**	**1325**	**1382**	**1440**	**1498**		**1556**	**1574**	**1632**	**1690**	**1748**	**1806**	**1864**	**1921**		**1997**
N.	184°·36	109·0	172·8*	131·7*	90·6*	49·5*	60·2*	19·1	*343·2*	302·1*	261·0*	N.	219·9*	230·6	*189·5*	148·4*	107·3*	66·2	25·1*	349·2	*−359·9*	318·8
														(America)						(America)	
F.	169°·03	123·8	187·5	146·4	105·3	64·2	74·9	*33·8*	−357·9	*−316·8*	*−275·7*	F.	−234·6	−245·3	−204·2	163·1	122·0	80·9	*39·8*	*−363·9*	*9·4*	*−333·5*
N.	0°·34	286·2*	*350·0*	308·9*	267·8*	226·7*	*237·4*	196·3*	155·2*	114·1*	73·0*	N.	31·9	42·6*	1·5	325·6*	284·5	243·4*	*202·3*	161·2*	171·9	130·8*
F.	345°·00	*−301·0*	*−364·8*	*−323·7*	*−282·6*	*−241·5*	*−252·2*	*211·1*	*170·0*	*128·9*	*87·8*	F.	*46·7*	*57·4*	*16·3*	*−340·4*	*−299·3*	*−258·4*	*217·1*	*176·0*	*186·7*	*145·6*
	A.D. 38	**1076**	**1134**	**1192**	**1250**	**1268**		**1383**	**1441**	**1499**		**1557**	**1575**	**1633**	**1691**	**1749**	**1807**		**1922**	**1940**	**1998**
F.	191°·65	*83·4*	*147·2*	*106·1*	65·0	23·9	34·6	−358·7	317·6	276·5	*235·4*	F.	*194·3*	*205·0*	*163·9*	*122·8*	81·7	40·6	−364·7	323·6	334·3	*293·2*
N.	176°·31	98·1*	161·9*	120·8*	79·7	38·6*	49·3	8·2*	*−332·3*	−291·2*	*−250·1*	N.	−209·0*	*−219·7*	178·6*	*137·5*	96·4	55·3*	*14·2*	−358·8	*−349·0*	−307·9
F.	7°·63	260·6	324·4	283·3	242·2	201·1	211·8	170·7	129·6	88·5	47·4	F.	6·3	17·0	341·1	300·0	258·9	217·8	176·7	135·6	146·3	105·2
N.	352°·29	*−275·3*	−339·1	−298·0*	−256·9	*215·8*	−226·5*	185·4	144·3*	103·2	62·1*	N.	21·0*	31·7	−355·6*	−314·7*	−273·6*	−232·5*	191·4	150·3	161·0*	119·9*
		(America)				(America)															
	A.D. 39	**1077**	**1135**	**1193**		**1269**	**1326**	**1384**	**1442**	**1500**		**1558**	**1576**	**1634**	**1692**	**1750**	**1808**	**1865**	**1923**	**1941**	**1999**
N.	198°·94	*57·7*	*121·5*	*80·4*	*39·3*	*−363·4*	*8·9*	*333·0*	*291·9*	*250·8*	*209·7*	N.	*168·6*	*179·3*	*138·2*	*97·1*	*56·0*	*14·9*	339·0	*297·9*	*308·6*	*267·5*
F.	183°·60	72·5	136·3	95·2	54·1	13·0	23·7	347·8	306·7	265·6	224·5	F.	183·4	194·1	153·0	111·9	70·8	29·7	−353·8	312·7	323·4	282·3
N.	168°·27	*87·2*	*151·0*	*109·9*	68·8*	*27·7*	*38·4*	*−362·5*	*−321·4*	*−280·3*	*−239·2*	N.	*198·1*	*208·8*	*167·7*	*126·6*	*85·5*	*44·4*	*3·3*	*−327·4*	*−338·1*	*−297·0*
N.	14°·92	*234·9*	*298·7*	*257·6*	*216·5*	*175·4*	*186·1*	*145·0*	*103·9*	*62·8*	*21·7*	N.	*345·8*	*−356·5*	*315·4*	*274·3*	*233·2*	*192·1*	*151·0*	*109·9*	*120·6*	*79·5*
F.	359°·58	249·7	313·5	272·4	231·3	190·2	200·9	159·8	118·7	77·6	36·5	F.	−360·6	6·3	330·2	289·1	248·0	206·9	165·8	124·7	135·4	94·3
N.	344°·25	−264·4	*−328·2*	−287·1	*−246·0*	204·9	*215·6*	174·5	133·4	92·3	*51·2*	N.	*10·1*	*20·8*	−344·9	−303·8	*−262·7*	−221·6*	*180·5*	139·4	150·1	109·0
	A.D. 40	**1078**	**1136**	**1194**	**1251**		**1327**	**1385**	**1443**	**1501**		**1559**	**1577**	**1635**	**1693**	**1751**	**1809**	**1866**	**1924**	**1942**	**2000**
N.	190°·89	46·8	110·6	69·5	28·4	−352·5	−363·2*	*322·1*	281·0*	*239·9*	198·8*	N.	*157·7*	168·4	*127·3*	86·2*	45·1*	*4·0*	318·1*	287·0	297·7	*256·6*
F.	175°·56	61·6	125·4	84·3	43·2	2·1	12·8	336·9	295·8	254·7	213·6	F.	172·5	183·2	142·1	101·0	59·9	18·8	342·9	301·8	312·5	271·4
N.	160°·22	*76·4*	*140·2*	*99·1*	*58·0*	*16·9*	*27·6*	*−351·7*	*−310·6*	*−269·5*	*−228·4*	N.	*187·3*	*198·0*	*156·9*	*115·8*	*74·7*	*33·6*	*−357·0*	*−316·6*	*−327·3*	*−286·2*
N.	6°·87	*224·0*	*287·8*	*246·7*	*205·6*	*164·5*	*175·2*	134·1*	93·0*	*51·9*	10·8*	N.	334·9*	345·6*	*304·5*	*263·4*	*222·3*	*181·2*	*140·1*	*99·0*	*109·7*	*68·6*
F.	351°·53	−238·8	−302·6	−261·5	−220·4	179·3	190·0	148·9	107·8	66·7	25·6	F.	−349·7	−360·4	−319·3	−278·2	−237·1	196·0	154·9	113·8	124·5	83·4

TABLE IV-L—*cont.*

Cycles of recurrence of Eclipses—Solar and Lunar—*cont.*

			0	57	115	173	191	249	307	365	423	481	539	557	614	672	730	788	846	864	922	980
			Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
				324·1	283·0	241·9	252·8	211·5	170·4	129·3	88·2	47·1	6·0	16·7	340·8	299·7	258·6	217·5	176·4	187·1	146·0	104·9
		Cyclic variation; add algebraically to fig. in col. 2.		−·08	−·17	−·25	+·22	+·14	+·05	−·03	−·12	−·20	−·29	+·18	+·10	+·01	−·07	−·16	−·24	+·23	+·15	+·06
			Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
Sun from node.		Successive differences.	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
		A.D. 41	**98**	**156**	**214**	**232**	**290**	**348**	**406**	**464**	**522**	**580**	**598**	**656**	**713**	**771**	**829**	**887**	**905**	**963**	**1021**
N.	182°·85	35·9*	*−360·0*	318·9	*277·8* (America.)	288·5*	247·4	206·3*	165·2	124·1*	83·0*	N. 41·9	52·6*	11·5	335·6*	*294·5*	253·4*	212·3	*225·0*	181·9	140·8*
F.	167°·51	*50·7*	*9·5*	*−333·7*	*−292·6*	*−303·5*	−262·2	−221·1	180·0	138·9	*97·8*	F. *56·7*	*67·4*	*26·3*	*−350·4*	*−309·3*	*−268·2*	*−227·1*	*−237·8*	196·7	155·6
F.	14°·16	*198·4*	*157·3*	*116·3*	*75·1*	*85·8*	*44·7*	3·6	*327·7*	*286·6*	*245·5*	F. *204·4*	*215·1*	*174·0*	*132·9*	*91·8*	*50·7*	9·6	*20·5*	*344·4*	*303·3*
N.	358°·82	−213·1	172·0*	130·9	89·8	100·5*	59·4	18·3*	−342·4*	−301·3*	−260·2*	N. −219·1*	*−229·8*	188·7	147·6*	106·5*	65·4	24·3*	35·0*	−359·1	*−318·0*
F.	190°·14	10·3	334·4	293·3	*252·2*	*262·9*	221·8	*180·7*	*139·6*	98·5	57·4	F. 16·3	(America.) 27·0	−351·1	310·0	268·9	227·8	*186·7*	*197·4*	*156·3*	115·2
		A.D. 42	**99**	**157**	**215**	**233**	**291**	**349**	**407**	**465**	**523**	**581**	**599**	**657**	**714**	**772**	**830**	**888**	**906**	**964**	**1022**
N.	174°·80	*25·0*	*−349·1*	*−308·0*	*−266·9*	*−277·6*	*−236·7*	*195·4*	154·3*	113·2*	*72·1*	N. *31·0*	41·7*	*0·6*	*−324·7*	−283·6*	*−242·5*	201·4*	*−212·1*	*171·0*	129·9
F.	6°·11	187·5	146·4	105·3	64·2	74·9	33·8	−357·9	316·8	275·7	234·6	F. 193·5	204·2	161·1	122·0	80·9	39·8	−363·9	9·9	333·5	292·4
N.	350°·78	202·2	161·1*	120·0*	78·9*	89·6	48·5	7·4	−331·5*	−290·4	−249·3*	N. 208·2	−218·9	175·8	136·7*	95·6	54·5*	13·4*	24·1	−348·2*	−307·1
N.	197°·43	349·9	308·8	*267·7*	*226·6*	*237·3*	*196·2*	*155·1*	*114·0*	*72·9*	*31·8*	N. −355·9	*1·3*	325·5	*284·4*	*243·3*	*202·2*	*161·1*	*171·8*	*130·7*	*89·6*
F.	182°·09	−354·7	323·6	282·5	241·4	252·1	211·0	169·9	128·8	87·7	46·6	F. 5·5	16·2	340·2	299·1	258·0	216·9	175·8	186·5	145·4	104·3
		A.D. 43	**100**	**158**	**216**	**234**	**292**	**350**	**408**	**466**	**524**	**582**	**600**		**715**	**773**	**831**	**889**	**907**	**965**	**1023**
N.	166°·75	*14·1*	*−338·2*	*−297·1*	*−256·0*	*−266·7*	*−225·6*	*184·5*	*143·4*	*102·3*	*61·2*	N. *20·1*	*30·8*	*−354·9*	*−313·8*	*−272·7*	*−231·6*	*190·5*	101·2*	*160·1*	*119·0*
N.	13°·40	*161·8*	*120·7*	*79·6*	*38·5*	*49·2*	*8·1*	*332·2*	*291·1*	*250·0*	*208·9*	N. *167·8*	*178·5*	*137·4*	*96·3*	*55·2*	*14·1*	*338·2*	348·9*	307·8	*266·7*
F.	358°·07	176·6	135·5	94·4	53·3	64·0	22·9	347·0	305·9	264·8	223·7	F. 182·6	193·3	152·2	111·1	70·0	28·9	−353·0	−363·7	322·6	281·5
N.	342°·73	*191·3*	150·2	*109·1*	*68·0*	*78·7*	*37·6*	*−361·7*	*−320·6*	*−279·5*	*−238·4*	N. 197·3	*208·0*	166·9*	125·8*	*84·7*	*43·6*	*2·5*	*13·2*	*−337·3*	*−296·2*
N.	189°·38	339·0	*297·9*	*256·8*	215·7	226·4*	185·3	144·2	103·1*	62·0*	*20·9*	N. 345·0	−355·7*	314·6	*273·5*	*232·4*	*191·3*	150·2*	160·9	119·8	78·7*
F.	174°·04	−353·7	−312·7	−271·6	−230·5	−241·2	200·1	159·0	117·9	76·8	35·7	F. −359·8	35·3	−329·4	−288·3	−247·2	−206·1	165·0	175·7	134·6	93·5
		A.D. 44	**102**	**160**	**218**	**236**	**293**	**351**	**409**	**467**	**525**	**583**	**601**	**659**	**717**	**775**	**833**	**890**	**908**	**966**	**1024**
N.	5°·36	*150·9*	109·8*	68·7*	27·6	38·3	−362·4	321·3*	*280·2*	239·1*	*198·0*	N. 156·9*	*167·6*	126·5*	*85·4*	44·3*	3·2*	327·3	*338·0*	*296·9*	255·8*
F.	350°·02	165·7	124·6	83·5	42·4	53·1	12·0	*−336·1*	−295·0	−253·9	−212·8	F. 171·7	182·5	141·4	100·3	59·2	18·1	*−343·2*	*−352·9*	−311·8	−270·7
N.	181°·33	*328·1*	287·0	*245·9*	204·8*	215·5	174·4*	133·3	92·2*	51·1*	*10·0*	N. 334·1*	*344·8*	303·7*	*262·6*	221·5*	180·4*	139·3*	150·0	108·9*	67·8
F.	165°·99	*−342·9*	*−301·8*	*−260·7*	−219·6	−230·3	*189·2*	148·1	*107·0*	*65·9*	*24·8*	F. *−348·7*	*−359·6*	*−318·5*	*−277·4*	*−236·3*	*195·2*	154·1	164·8	*123·7*	*82·6*
		A.D. 45	**103**	**161**	**219**	**237**	**294**	**352**	**410**	**468**	**526**	**584**	**602**	**660**	**718**	**776**		**891**	**909**	**967**	**1025**
F.	12°·64	*125·2*	*84·1*	*43·0*	1·9	*12·6*	336·7	*295·6*	*254·5*	*213·4*	*172·3*	F. *131·2*	*141·9*	*100·8*	*59·7*	18·6	342·7	*301·6*	*312·3*	*271·2*	*230·1*
N.	357°·30	140·0*	98·9*	57·8	16·7*	27·4	−351·5*	−310·4	−269·3*	−228·2*	187·1*	N. 146·0	156·7	115·6*	74·5	*33·4*	−357·5*	−316·4*	−327·1	*−286·0*	−244·9*
F.	188°·62	302·4	261·3	220·2	179·1	189·8	*148·7*	107·6	66·5	25·4	349·5	F. 308·4	319·1	278·0	236·9	195·8	*154·7*	113·6	124·3	83·2	42·1
N.	173°·29	*−317·2*	*−276·1**	*−235·0**	*193·9*	*204·6*	*163·5*	122·4*	*81·3*	*40·2*	*−364·3*	N. *−323·2*	*−333·9*	*−292·8*	*−251·7*	*210·6*	169·5*	*128·4*	*139·1*	*98·0*	56·9*
		A.D. 46	**104**	**162**			**295**	**353**	**411**	**469**	**527**	**585**	**603**	**661**	**719**		**834**	**892**	**910**	**968**	**1026**
N.	19°·93	*99·6*	*58·4*	*17·3*	*341·5*	*−352·2*	*311·1*	*270·0*	*228·9*	*187·8*	*146·7*	N. *105·6*	*116·3*	*75·2*	*34·0*	*−358·1*	*317·0*	*275·9*	*286·6*	*245·5*	*204·4*
F.	4°·60	114·4	73·2	32·1	−356·3	1·8	325·9	284·8	243·7	202·6	161·5	F. 120·4	131·1	90·0	48·8	7·7	331·8	290·7	301·4	260·3	219·2
N.	349°·28	129·1*	88·0	46·9	5·8	16·5	*−340·7*	−299·6*	*−258·5*	217·4*	176·3	N. 135·2*	145·9	104·8*	63·7	22·6	−346·7*	*−305·6*	*−316·3**	*−275·2**	*−234·1**
N.	195°·91	276·8	*235·6*	*194·5*	*153·4*	*164·1*	*123·0*	81·9	40·8	*−364·9*	323·8*	N. *282·7*	293·4*	*252·3*	*211·2*	*170·1*	*129·0*	87·9	*98·6*	57·5	16·4
F.	180°·57	291·5	250·3	209·2	168·1	178·8	137·7	96·6	55·5	14·4	338·5	F. 297·4	308·1	267·0	225·9	184·8	143·7	102·6	113·3	72·2	31·1
N.	165°·24	*−306·3*	*−265·1*	*−224·0*	*182·9*	*193·6*	*152·5*	*111·4*	*70·3*	*29·2*	*−353·3*	N. *−312·2*	*−322·9*	*−281·8*	*−240·7*	*199·6*	*158·5*	*117·4*	*128·1*	*87·0*	*45·9*

Cycles of recurrence of Eclipses—Solar and Lunar—cont.

	0	1033	1096	1153	1211	1229	1287	1345	1403	1461
	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
		63·8	22·7	346·8	305·7	316·4	276·3	224·1	193·1	152·0
Cyclic variation; add algebraically to fig. in col. 2.		−·02	−·11	−·19	−·28	+·19	+·11	+·02	−·06	−·15

	1519	1537	1595	1653	1710	1768	1826	1884	1902	1960
	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dy
	110·9	121·1	80·5	39·4	358·6	322·4	281·3	240·2	250·9	209·8
	−·23	+·24	+·16	+·07	+·00	−·03	−·17	−·25	+·22	+·14

Sun from node.	Successive differences.	+58 −41·1 (23)	+58 −41·1 (24)	+58 −41·1 (25)	+58 −41·1 (26)	+18 +10·7 (27)	+58 −41·1 (28)	+58 −41·1 (29)	+58 −41·1 (30)	+58 −41·1 (31)
		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
	A.D. 41	**1079**	**1137**	**1195**	**1252**	**1270**	**1328**	**1386**	**1444**	**1502**
N. 182°·85	35·9°	99·7°	*58·6*	17·5°	341·6°	352·3	*311·2*	270·1°	229·0°	187·9°
F. 167°·51	*50·7*	*114·5*	73·4	*32·3*	*—356·4*	*—367·1*	*—326·0*	*—284·9*	*—243·8*	202·7
F. 14°·16	*198·4*	*262·2*	*221·1*	*180·0*	*138·9*	*149·6*	*108·5*	*67·4*	*26·3*	350·4
N. 358°·82	—213·1	—276·9°	—235·8°	194·7°	153·6	164·3	123·2°	82·1°	41·0°	—365·1°
F. 190°·14	10·3	74·1	33·0	—357·1	316·0	321·7	285·6	244·5	*203·4*	162·3
	A.D. 42	**1080**	**1138**	**1196**	**1253**	**1271**	**1329**	**1387**	**1445**	**1503**
N. 174°·80	*25·0*	88·8°	*47·7*	*6·6*	*—330·7*	*—341·4°*	*—300·3*	*—259·2°*	*—218·1*	177·0°
F. 6°·11	187·5	251·3	210·2	169·1	128·0	138·7	97·6	56·5	15·1	339·5
N. 350°·78	202·2	— 66·0°	224·9	*183·8*	142·7	153·4°	112·3	71·2°	30·1°	—354·2
N. 197°·43	349·9	*48·5*	7·4	*331·5*	290·4°	301·1	*260·0*	*218·9*	*177·8*	*136·7*
F. 182°·09	—364·7	63·2	22·1	346·2	305·1	315·8	274·7	233·6	192·5	151·4
	A.D. 43	**1081**	**1139**		**1254**	**1272**	**1330**	**1388**	**1446**	**1504**
N. 166°·75	*14·1*	77·9	*36·8*	*—360·9*	*—319·8*	*—330·5*	*—289·4*	*—248·3*	*207·2*	*166·1*
N. 13°·40	*161·8*	*225·6*	*184·5*	1197 *143·4*	*102·3*	1255 *113·0*	1273 71·9	1331 30·8°	1389 *—354·9*	*313·8*
F. 358°·07	176·6	240·4	199·3	158·2	117·1	127·8	86·7	45·6	4·5	328·6
N. 342°·73	*191·3*	—255·1°	*214·0*	172·9°	*131·8*	142·5	*101·4*	*60·3*	*19·2*	*—343·3*
N. 189°·38	339·0	37·6	—361·7	320·6°	279·5	*290·2*	249·1°	*208·0*	166·9°	125·8
F. 174°·04	—353·7	52·4	11·3	—335·4	—294·3	—305·0	—263·9	—222·8	181·7	140·6
	A.D. 44	**1082**	**1140**	**1198**	**1256**	**1274**	**1332**	**1390**	**1447**	**1505**
N. 5°·36	*150·9*	*214·7*	173·6°	*133·5*	91·4°	102·1°	61·0°	*19·9*	344·0°	302·9°
F. 350°·02	165·7	—229·6	188·5	147·4	106·3	117·0	75·9	34·8	*—358·9*	—317·8
N. 181°·33	*328·1*	*26·7*	—350·8°	309·7°	268·6	*279·3*	*238·2*	197·1°	156·0°	114·9°
F. 165°·99	*—342·9*	*41·5*	*0·4*	*—324·5*	*—283·4*	*—294·1*	*—253·0*	*211·9*	170·8	*129·7*
	A.D. 45	**1083**	**1141**	**1199**	**1257**	**1275**	**1333**		**1448**	**1506**
F. 12°·64	*125·2*	*189·0*	*147·9*	*106·8*	*65·7*	*76·4*	35·3	—359·4	*318·3*	*277·2*
N. 357°·30	140·0°	—203·6°	162·7°	121·6	80·5	91·2°	50·1	8·9°	*—333·0*	—291·9°
F. 188°·62	302·4	1·0	325·1	284·0	242·9	253·6	212·5	*171·4*	130·2	89·1
N. 173°·29	*—317·2*	*15·8*	*—339·9*	*—298·8*	*—257·7*	*—268·4*	*—227·3*	*186·2*	145·0	103·9°
	A.D. 46	**1084**	**1142**	**1200**	**1258**	**1276**	**1334**	**1391**	**1449**	**1507**
N. 19°·93	*99·6*	*163·3*	*122·2*	*81·1*	*40·0*	*50·7*	*9·6*	*339·6*	*292·5*	*251·4*
F. 4°·60	114·4	178·1	137·0	95·9	54·8	65·5	24·4	348·4	307·3	266·2
N. 349°·26	129·1°	192·9	*151·8*	110·7	69·6°	80·3	39·2°	—363·2	—322·1	—281·0
N. 195°·91	276·8	*340·5*	*299·4*	258·3	*217·2*	*227·9*	*186·8*	*145·6*	*104·5*	63·4
F. 180°·57	291·5	—355·2	314·1	273·0	231·9	242·6	201·5	160·4	119·3	78·2
N. 165°·24	*—306·3*	*4·8*	*—328·9*	*—287·8*	*—246·7*	*—257·4*	*216·3*	*175·2*	*134·1*	*93·0*

Sun from node.	Successive differences.	+58 −41·1 (32)	+18 +10·7 (33)	+58 −41·1 (34)	+58 −41·1 (35)	+58 −41·1 (36)	+58 −41·1 (37)	+58 −41·1 (38)	+58 −41·1 (39)	+18 +10·7 (40)	+58 −41·1 (41)
		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
		1560	**1578**	**1636**	**1694**	**1752**	**1809**	**1867**	**1925**	**1943**	**2001**
N.		146·8°	*157·5*	116·4°	75·3	34·2	—358·3°	317·2	276·1	286·8	245·7
F.		161·6	172·3	131·2	90·1	*49·0*	*7·9*	*—232·0*	*—290·9*	*—301·6*	*—260·5*
F.		*309·3*	*320·0*	*278·9*	*237·8*	*196·7*	*155·6*	*114·5*	*73·4*	*84·1*	43·0
N.		—324·0°	—334·7	—293·6°	—252·5	—211·4°	*170·3*	129·2°	88·1	98·8°	57·7
F.		121·2	*131·9*	90·8	49·7	8·6	332·7	291·6	250·5	*261·2*	*220·1*
		1561	**1579**	**1637**	**1695**	**1753**	**1810**	**1868**	**1926**	**1944**	**2002**
N.		135·9°	146·6°	*105·5*	*64·4*	23·3°	*—347·4*	*306·3*	*—265·2*	—275·9	*—234·8*
F.		298·4	309·1	268·0	226·9	185·8	144·7	103·6	62·5	73·2	32·1
N.		*—313·1*	—323·5°	—282·7°	—241·6°	200·5°	*159·4*	118·3	77·2	87·9°	46·8
N.		*95·6*	*106·3*	*65·2*	*24·1*	348·2	(America) *307·1*	*266·0*	*224·9*	*235·6*	*194·5*
F.		110·3	121·0	79·9	38·8	—362·9	321·8	280·7	239·6	250·3	209·2
		1562	**1580**	**1638**	**1696**	**1754**	**1811**	**1869**	**1927**	**1945**	**2003**
N		*135·0*	*135·7*	*94·6*	*53·5*	*12·4*	*—336·5*	*—295·4*	*—254·3*	*—265·0*	*—223·9*
N.		*272·7*	*283·4*	*242·3*	*201·2*	*160·1*	*119·0*	77·9	36·8	*47·5*	*6·4*
F.		287·5	298·2	257·1	216·0	174·9	133·8	92·7	51·6	62·3	21·2
N.		*—302·2*	*—312·9*	*—271·8*	*—230·7*	189·6	*148·5*	*107·4*	*66·3*	77·0	*35·9*
N.		84·7	95·4	54·3	13·2°	337·3	296·2°	255·1	214·0	*224·7*	*183·6*
F.		99·5	110·2	69·1	28·0	—352·1	—311·0	—269·9	—228·8	—239·5	198·4
		1563	**1581**	**1639**	**1697**	**1755**	**1813**	**1871**	**1929**	**1947**	**2004**
N.		261·8°	*273·5*	*231·4*	190·3°	149·2°	*108·1*	67·0°	25·9°	36·6	*—360·7*
F.		—276·7	—287·4	—246·3	—205·2	164·1	123·0	81·9	40·8	51·5	*10·4*
N.		78·8°	84·5°	*43·4*	*2·3*	326·4°	285·3	244·2°	203·1	*213·8*	172·7°
F.		*88·6*	*99·3*	*58·2*	*17·1*	*—341·2*	*—300·1*	*—259·0*	*—217·9*	*—228·6*	187·5
		1564	**1582**	**1640**	**1698**	**1756**	**1814**	**1872**	**1930**	**1948**	**2005**
F.		*36·1*	*246·8*	*205·7*	*64·6*	*123·5*	*82·4*	41·3	0·2	10·9	*335·0*
N.		*—250·8*	*—261·5°*	*—220·4*	179·3°	*138·2*	97·1°	5 0°	*14·9*	25·6°	—349·7°
F.		48·0	58·7	17·6	341·7	300·6	259·5	218·4	177·3	188·0	146·9
N.		*62·8*	*73·5*	*32·4*	—356·5°	*—315·4*	*—274·3*	*—233·2*	*192·1*	*202·8*	*161·7*
		1565	**1583**	**1641**	**1699**	**1757**	**1815**	**1873**			**2006**
N.		*210·3*	*221·0*	*179·9*	*138·8*	97·7	*56·6*	*15·5*	*339·6*	*350·3*	*309·2*
F.		225·1	235·8	194·7	153·6	112·5	71·4	30·3	—354·4	—365·1	324·0
N.		*—239·9*	—250·6°	209·5°	168·4°	127·3	86·2°	45·1	4·0	14·7	—338·8
N.		22·3	33·0	—357·1	316·0	*274·9*	*233·8*	192·7	*151·6*	*162·3*	*121·2*
F.		37·1	47·8	6·7	330·8	289·7	248·6	207·5	166·4	177·1	136·0
N.		*51·9*	*62·6*	*21·5*	*—345·6*	*—304·5*	*—263·4*	*222·3*	*181·2*	*191·9*	*150·8*

TABLE IV-L—*cont.*

Cycles of recurrence of Eclipses—Solar and Lunar—*cont.*

			Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.		Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
		0	**57** 324·1	**115** 283·0	**173** 241·9	**191** 252·8	**249** 211·5	**307** 170·4	**365** 129·3	**423** 88·2	**481** 47·1		**539** 6·0	**557** 16·7	**614** 340·8	**672** 299·7	**730** 258·6	**788** 217·5	**846** 176·4	**864** 187·1	**922** 146·0	**980** 104·9
Cyclic variation; add algebraically to fig. in col. 2.			−·08	−·17	−·25	+ 22	+ ·14	+ ·05	−·03	−·12	−·20		−·29	+ ·18	+ ·10	+ ·01	−·07	−·16	+ ·24	+ ·23	+ 15	+ ·06
			Yrs. Dys.	Yrs. Dys.	Yrs. Dys	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.		Yrs. Dys.	Yrs. Dys	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
Sun from node.		Successive differences.	+58 −41·1	+58 −41·1	+58 −41·1	+18 +107	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1		+58 −41·1	+18 +107	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +107	+58 −41·1	+58 −41·1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
		A.D. 47	**105**	**163**	**220**	**238**	**296**	**354**	**412**	**470**	**528**		**586**	**604**	**662**	**720**	**777**	**835**	**893**	**911**	**969**	**1027**
N.	11°·89	88·7	*47·6*	*6·5*	*330·6*	*341·3*	*300·2*	*259·1*	*218·0*	*176·9*	*135·8*	N.	*94·7*	*105·4*	64·3*	*23·2*	*347·3*	*306·2*	*265·1*	*275·8*	*234·7*	*193·6*
F.	356°·55	103·5	62·3	21·2	345·2	−356·0	314·9	273·8	232·7	191·6	150·5	F.	109·4	120·1	79·0	37·9	−362·0	320·9	279·8	290·5	249·4	208·3
N.	341°·22	*118·2*	*77·1*	*36·0*	*−360·1*	*5·6*	*−329·7*	*−288·6*	*−247·5*	206·4	*165·3*	N.	*124·2*	*134·9*	*93·8*	*52·7*	*11·6*	*−335·7*	*−294·6*	*−305·3*	*−264·2*	−223·1*
										(penumbral.)												(penumbral.)
N.	187°·86	*265·9*	224·7	183·6	142·5	153·2*	112·1*	71·0*	29·9	−354·0	312·9	N.	271·8*	282·5*	*241·4*	200·3	159·2	118·1*	77·0*	87·7	46·6*	5·5
F.	172°·53	−280·6	−239·5	198·4	157·3	168·0	126·9	85·8	44·7	3·6	−327·7	F.	−280·6	−297·3	−256·2	−215·1	174·0	132·9	91·8	102·5	61·4	20·3
		A.D. 48	**106**		**221**	**239**	**297**	**355**	**413**	**471**	**529**		**587**	**605**	**663**	**721**	**778**	**836**	**894**	**912**	**970**	**1028**
N.	8°·84	77·8*	36·7*	−360·8	319·7*	350·4	289·3*	*248·2*	207·1*	*166·0*	124·9*	N.	83·8*	94·5*	53·4*	12·3	336·4*	295·3	254·2*	*264·9*	223·8*	182·7*
F.	348°·51	92·6	*51·4*	*10·3*	*−330·4*	*−345·1*	*−304·0*	−262·9	−221·8	180·7	139·6	F.	98·5	109·2	*68·1*	*27·0*	*−351·1*	*−310·0*	−268·9	−279·6	−238·5	197·4
F.	195°·15	*240·2*	*199·1*	158·0	*116·9*	*127·6*	*86·5*	*45·4*	*4·3*	*328·4*	*287·3*	F.	*246·2*	*256·9*	*215·8*	*174·7*	*133·6*	*92·5*	*51·4*	*62·1*	*21·0*	*345·1*
N.	179°·82	−255·0	*−313·9*	172·8*	131·7	142·4*	101·3*	60·2	19·1*	*−343·2*	−302·1	N.	−261·0	−271·7	*−230·6*	189·5*	148·4*	107·3	66·2*	76·9*	35·8	*−359·9*
		A.D. 49	**107**	**164**	**222**	**240**	**298**	**356**	**414**	**472**	**530**		**588**	**606**	**664**		**779**	**837**	**895**	**913**	**971**	**1029**
F.	11°·13	52·1	11·0	335·1	294·0	304·7	*263·6*	*222·5*	*181·4*	*140·3*	*99·2*	F.	*58·1*	68·8	27·7	−351·8	310·7	*269·6*	*228·5*	*239·2*	*198·1*	*157·0*
N.	355°·80	66·0*	25·8	−349·9*	−308·8*	−319·5	−278·4	−237·3*	196·2*	155·1*	114·0	N.	72·5*	83·6	42·5	1·4	−325·5*	−284·4	−243·3*	−254·0	−212·9	171·8*
																				(America.)		
F.	187°·11	229·3	188·2	147·1	106·0	116·7	75·6	34·5	−358·6	317·5	276·4	F.	235·3	246·0	204·9	163·8	122·7	81·6	40·5	51·2	10·7	334·2
N.	171°·77	− 244·1*	203·0*	*161·9*	*120·8*	*131·5*	90·4*	*49·3*	*8·2*	*−332·3*	*−291·2*	N.	*−250·1*	*−260·8*	*−219·7*	*178·6*	137·5*	*96·4*	*55·3*	*66·0*	24·9*	*−349·0*
		A.D. 50	**107**	**165**	**223**	**241**	**299**	**357**	**415**	**473**	**531**		**589**	**608**	**665**	**722**	**780**	**838**	**896**	**914**	**972**	**1030**
N.	18°·42	*26·5*	*−350·5*	*309·4*	*268·3*	*279·0*	*237·9*	*196·8*	*155·7*	*114·6*	*73·5*	N.	*32·4*	*43·1*	*2·0*	*326·1*	*285·0*	*243·9*	*202·8*	*213·5*	*172·4*	*131·3*
F.	3°·08	41·2	0·1	324·2	283·1	293·8	252·7	211·6	170·5	129·4	88·3	F.	47·2	57·9	16·8	340·9	299·8	258·7	217·6	228·3	187·2	146·1
N.	347°·75	56·0	14·8	−338·9	−297·8	*−308·5*	*−267·4*	−226·3	185·2*	144·1	103·0*	N.	61·9*	72·6	31·5*	−355·6	−314·5	*−273·4*	*−232·3*	−243·0*	201·9*	160·8
N.	194°·40	*203·7*	162·5	*121·4*	80·3	91·0	49·9	8·8*	*332·9*	291·8*	*250·7*	N.	209·6*	220·3	*179·2*	*138·1*	97·0	55·9	14·8*	25·5	349·6	*308·5*
F.	179°·06	218·4	177·3	136·2	95·1	105·8	64·7	23·6	347·7	306·6	265·5	F.	224·4	235·1	194·0	152·9	111·8	70·7	29·6	40·3	−364·4	323·3
N.	163°·73	*−233·2*	*192·0*	*150·9*	*109·8*	*120·5*	*79·4*	*38·3*	*−562·4*	*−321·3*	*−280·2*	N.	*−239·1*	*−249·8*	*208·7*	*167·6*	126·5*	*85·4*	*44·3*	*55·0*	*13·9*	*−338·0*
		A.D. 51	**108**	**166**	**224**	**242**	**300**	**358**	**416**	**474**	**532**		**590**	**608**		**723**	**781**	**839**	**897**	**915**	**973**	**1031**
N.	10°·87	*15·6*	*339·7*	*298·6*	*257·5*	268·2	227·1	*186·0*	*144·9*	*103·8*	*62·7*	N.	*21·6*	32·3*	*−356·4*	*315·3*	*274·2*	*233·1*	*192·0*	*202·7*	*161·6*	*120·5*
F.	355°·04	30·4	−354·4	−313·3	−272·2	−282·9	−241·8	200·7	159·6	118·5	77·4	F.	36·3	47·0	5·9	−330·0	−288·9	−247·8	−206·7	−217·4	176·3	135·2
N.	186°·35	192·8	151·6	110·5*	69·4	80·1*	39·0*	−363·1	322·0	280·9	239·8*	N.	198·7*	*209·4*	168·3	127·2*	86·1	45·0*	3·9*	14·6*	338·7*	297·6*
F.	171°·02	−207·5	166·4	125·3	84·2	94·9	53·8	12·7	−336·8	−295·7	−254·6	F.	−213·5	−224·2	183·1	142·0	100·9	59·8	18·7	29·4	−353·5	−312·4
		A.D. 52	**109**	**167**	**225**	**243**	**301**	**359**	**417**	**475**	**533**		**591**	**609**	**666**	**724**	**782**	**840**	**898**	**916**	**974**	**1032**
N.	2°·33	4·7*	*328·8*	287·7*	246·6	257·3*	*216·2*	175·1*	*134·0*	92·9*	51·8*	N.	10·7	21·4*	345·5	304·4*	263·3*	222·2*	*181·1*	191·8*	150·7*	109·6*
F.	346°·99	*19·5*	*−343·5*	*−302·4*	*−261·3*	*−272·0*	−230·9	189·8	148·7	107·6	*66·5*	F.	*25·4*	*36·1*	*−360·2*	*−319·1*	*−278·0*	−236·9	195·8	206·5	165·4	124·3
F.	193°·64	*167·1*	*126·0*	*84·9*	*43·8*	*54·5*	*13·4*	*337·5*	*296·4*	*255·3*	*214·2*	F.	*173·1*	*183·8*	*142·7*	*101·6*	*60·5*	*19·4*	*343·5*	*−354·2*	*313·1*	*272·0*
N.	178°·30	*181·9*	140·8*	99·7	*58·6*	69·3	*28·2*	−352·8*	*−311·2*	−270·1*	*−229·0*	N.	187·9*	*198·6*	157·5*	116·4*	*75·3*	34·2*	−358·3*	*3·8*	−327·9*	−286·8*
F.	9°·61	344·3	303·2	262·1	*221·0*	*231·7*	*190·6*	149·5	*108·4*	67·3	26·2	F.	−350·3	−361·0	319·9	278·8	*237·7*	*196·6*	155·5	*166·2*	*125·1*	84·0
N.	354°·28	−359·1*	−318·0*	−276·9*	−285·8	*−246·5*	−205·4	164·3*	123·2*	82·1	41·0*	N.	0·0*	10·7	−334·7	−293·6*	−252·5*	−211·4*	*170·3*	181·0*	139·9*	98·8*
		A.D. 53	**111**	**169**	**227**	**245**	**303**	**360**	**418**	**476**	**534**		**592**	**610**	**668**	**726**	**784**	**842**	**899**	**917**	**975**	**1033**
F.	185°·59	156·2	115·1	74·0	32·9	43·6	2·5	326·6	285·5	244·4	203·3	F.	162·2	172·9	131·8	90·7	49·6	8·5	332·6	343·3	302·2	261·1
N.	170°·26	171·0*	*129·9*	*88·8*	*47·7*	*58·4*	*17·3*	*−341·4*	*−300·3*	*−259·2*	−218·1*	N.	*177·0*	*187·7*	*146·6*	105·5*	*64·4*	*23·3*	*−347·4*	*−358·1*	*−317·0*	*−275·9*
N.	16°·91	*318·7*	*277·5*	*236·4*	*195·3*	*206·0*	*164·9*	*123·8*	*82·7*	*41·6*	*0·5*	N.	*324·6*	*335·3*	*294·2*	*253·1*	*212·0*	*170·9*	*129·8*	*140·5*	*99·4*	*58·3*
F.	1°·57	323·4	282·3	241·2	210·1	220·8	179·7	138·6	97·5	56·4	15·3	F.	339·4	350·1	309·0	267·9	226·8	185·7	144·6	155·3	114·2	73·1
N.	340°·24	−348·1	*−307·0*	−265·9	*−224·8*	−235·5	194·4	153·3*	112·2	71·1	30·0	N.	*−354·1*	−364·8	*−323·7*	−282·6*	−241·5	*200·4*	*159·3*	170·0*	128·9	87·8*

Cycles of recurrence of Eclipses—Solar and Lunar—cont.

		O	1038	1096	1153	1211	1229	1287	1345	1403	1461	1519	1537	1595	1653	1710	1768	1826	1884	1902	1960
			Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrc. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
			63·5	22·7	346·8	305·7	316·4	276·3	284·1	193·1	152·0	110·9	121·8	80·5	39·4	363·6	322·4	281·3	240·2	250·9	209·8
		Cyclic variation; add algebraically to fig. in col. 2.	−·02	−·11	−·19	−·28	+·19	+·11	+·02	−·06	−·15	−·23	+·24	+·16	+·07	+·00	−·08	−·17	−·25	+·22	+·14
			Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
Sun from node.		Successive differences.	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	
			(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)
		A.D. 47	**1085**	**1143**	**1201**	**1259**	**1277**		**1392**	**1450**	**1508**	**1566**	**1584**	**1642**	**1700**	**1758**	**1816**	**1874**	**1931**	**1949**	**2007**
N.	11°·89	87·7	*153·5*	*111·4*	*70·3*	*29·2*	*39·9*	−364·0*	*322·8*	*281·7*	*240·6*	*199·5*	*210·2*	*169·1*	*128·0*	*86·9*	*45·8*	*4·7*	*328·8*	*339·5*	*298·4*
F.	356°·55	103·5	167·2	126·1	85·0	43·9	54·6	13·5	337·5	296·4	255·3	214·2	224·9	183·8	142·7	101·6	60·5	19·4	343·5	−354·2	313·1
N.	341°·22	*118·2*	*182·0*	140·9* (penumbral)	*99·8*	*58·7*	*69·4*	*28·3*	*−352·3*	*−311·2*	*−270·1*	*−229·0*	*−239·7*	*198·6*	*157·5*	*116·4*	*75·3*	*34·2*	*−358·3*	*3·8*	*−327·9*
N.	187°·86	*265·9*	329·6	288·5	247·4*	*206·3*	217·0*	*175·9*	134·7*	93·6	52·5	11·4*	22·1	346·2*	305·1	264·0*	222·9*	181·8*	*140·7*	151·4	110·3
F.	172°·53	−280·6	−344·4	−303·3	−262·2	−221·1	−231·8	190·7	149·5	108·4	67·3	26·2	36·9	−361·0	−319·9	−278·8	−237·7	196·6	155·5	166·2	125·1*
		A.D. 48	**1086**	**1144**	**1202**	**1260**	**1278**	**1335**	**1393**	**1451**	**1509**	**1567**	**1585**	**1643**	**1701**	**1759**	**1817**		**1932**	**1950**	**2008**
N.	3°·84	77·8*	141·6*	*100·5*	59·4*	13·3*	29·0	*−355·1*	311·9*	270·8*	229·7*	*188·6*	*199·3*	158·2*	117·1*	*76·0*	34·9*	−359·0*	317·9	*328·6*	287·5*
F.	348°·51	92·6	156·3	115·2	*74·1*	*33·0*	*43·7*	*2·6*	−325·6	−285·5	−244·4	203·3	214·0	172·9	131·8	90·7	49·6	*8·5*	*−332·6*	*−343·3*	*−302·2*
F.	195°·15	*240·2*	*304·0*	*262·9*	*221·8*	*180·7*	*191·4*	*150·3*	*109·1*	*68·0*	*26·9*	*−351·0*	*−361·1*	*320·6*	*279·5*	*238·4*	*197·3*	*156·2*	*115·1*	*125·8*	*84·7*
N.	179°·82	−255·0	−318·8*	−277·7*	−236·6*	195·5*	*−206·3*	165·1*	123·9	82·8	41·7*	0·6	11·3	*−335·4*	−294·3*	−253·2	−212·1*	171·0*	129·9*	140·8	99·5*
		49 A.D.	**1087**	**1145**	**1203**		**1279**	**1336**	**1394**	**1452**	**1510**	**1568**	**1586**	**1644**	**1702**	**1760**	**1818**	**1875**	**1933**	**1951**	**2009**
F.	11°·18	52·1	*115·9*	74·8	33·7	−357·8	8·3	327·4	286·2	245·1	*204·0*	*162·9*	*173·6*	*132·5*	*91·4*	50·3	9·2	333·8	292·2	302·9	261·8
N.	355°·80	66·9*	133·7*	89·6*	48·5	7·4*	18·1	−342·2*	*−301·0*	−259·9*	*−218·8*	177·7*	188·4	147·3*	106·2	65·1*	24·0*	*−348·1*	−307·0*	*−317·7**	*−276·6**
F.	187°·11	229·3	293·1	252·0	210·9	169·8	180·5	139·4	98·2	57·1	16·0	340·1	−350·8	309·7	268·6	227·5	186·4	145·3	104·2	114·9	73·8
N.	171°·77	−244·1*	*−307·9*	*−266·8*	*−225·7*	184·6*	*195·3*	*154·2*	*113·0*	71·9*	*30·8*	*−354·9*	*0·4*	*−324·5*	−283·4*	*−242·3*	*201·2*	*160·1*	119·0	129·7	88·6
		A.D. 50	**1088**	**1146**	**1204**	**1261**		**1337**	**1395**	**1453**	**1511**	**1569**	**1587**	**1645**	**1703**	**1761**		**1876**	**1934**	**1952**	**2010**
N.	18°·42	*26·5*	*90·2*	*49·1*	*8·0*	*332·1*	*342·8*	*301·7*	*260·5*	*219·4*	*178·3*	*137·2*	*147·9*	*106·8*	*65·7*	*24·6*	*348·7*	*307·6*	*266·5*	*277·2*	*236·1*
F.	3°·08	41·2	105·0	63·9	22·8	346·9	−357·6	316·5	275·3	234·2	193·1	152·0	162·7	121·6	80·5	39·4	−363·5	322·4	281·3	292·0	250·9
N.	347°·75	56·0	119·7	78·6*	37·5	*−361·6*	7·1*	−331·2	−290·0	−248·9	*207·8*	*166·7*	177·4*	136·3*	95·2	54·1*	13·0	−337·1*	*−296·0*	−306·8	*−265·7*
N.	194°·40	*203·7*	*267·4*	226·3	*185·2*	144·1*	*154·8*	113·7	72·5	31·4*	−355·5	314·4*	325·1	284·0	242·9	*201·8*	160·7*	119·6	*78·5*	89·2	48·1
F.	179°·06	218·4	282·2	241·1	200·0	158·9	169·6	128·5	87·3	46·2	5·1	329·2	339·9	298·8	257·7	216·6	175·5	134·4	93·3	104·0	62·9
N.	163°·73	*−233·2*	*−296·9*	*−255·8*	*214·7*	*173·6*	*184·3*	*143·2*	*102·0*	*60·9*	*19·8*	*−343·9*	*−354·6*	*−313·5*	*−272·4*	*−231·3*	*190·2*	*149·1*	*108·0*	*118·7*	*77·6*
		A.D. 51	**1089**	**1147**		**1262**	**1280**	**1338**	**1396**	**1454**	**1512**	**1570**	**1588**	**1646**	**1704**	**1762**	**1819**	**1877**	**1935**	**1953**	**2011**
N.	10°·37	*15·6*	79·4*	*38·3*	−362·4*	*321·3*	332·0*	*290·9*	*249·7*	*208·6*	*167·5*	*126·4*	*137·1*	*96·0*	*54·9*	13·8*	*337·9*	*296·8*	*255·7*	*266·4*	*225·3*
F.	355°·04	30·4	94·1	53·0	11·9	−336·0	−346·7	−305·6	−264·4	−223·3	182·2	141·1	151·8	110·7	69·6	28·5	−352·6	−311·5	−270·4	−281·1	−240·0
N.	186°·35	192·8	*256·5*	215·4*	*174·3*	133·2	143·9	102·8*	61·6*	20·5*	344·6*	303·5	314·2*	273·1	232·0*	190·9*	149·8	108·7	67·6*	78·3*	37·2
F.	171°·02	−207·5	−271·3	−230·2	189·1	148·0	158·7	117·6	76·4	35·3	−359·4	−318·3	−329·0	−287·9	−246·8	−205·7	164·6	123·5	82·4	93·1	52·0
		A.D. 52	**1090**	**1148**	**1205**	**1263**	**1281**	**1339**	**1397**	**1455**	**1513**	**1571**	**1589**	**1647**	**1705**	**1763**	**1820**	**1878**	**1936**	**1954**	**2012**
N.	2°·33	4·7*	*68·5*	27·4*	−351·5*	310·4	321·1*	280·0*	*238·8*	197·7	*156·6*	115·5*	126·2*	85·1*	*44·0*	2·9*	327·0*	285·9*	*244·8*	255·5	*214·4*
F.	346°·99	*19·5*	*83·2*	*42·1*	*1·0*	*−325·1*	*−335·8*	*−294·7*	−253·5	212·4	171·3	130·2	140·9	*99·8*	*58·7*	*17·6*	*−341·7*	*−300·6*	*−259·5*	*−270·2*	*−299·1*
F.	193°·64	*167·1*	*230·9*	*189·8*	148·7	*107·6*	*118·3*	77·2	*36·0*	−360·1	319·0	*277·9*	*288·6*	*247·5*	*206·4*	*165·3*	124·2	*83·1*	*42·0*	*52·7*	*11·6*
N.	178°·30	*181·9*	−215·7*	−204·6	163·5*	*122·4*	133·1*	*92·0*	50·8	9·7*	*−333·8*	−292·7*	−303·4	−262·3*	*−221·2*	180·1*	*139·0*	97·9*	*56·8*	67·5*	*26·4*
F.	9°·61	344·3	42·9	1·8	326·0	284·9	295·6	254·5	213·3	*172·2*	*131·1*	90·0	100·7	59·6	18·5	342·6	301·5	260·4	219·3	230·0	*188·9*
N.	354°·28	−359·1*	57·7*	16·6	−340·8*	−299·7*	−310·4*	*−269·3*	−228·1*	*187·0*	145·8*	104·8*	115·5*	74·4*	33·3*	−357·4*	*−316·3*	−275·2	−234·1	−244·8*	−203·7
		A.D. 53	**1091**	**1149**	**1207**	**1265**	**1283**	**1341**	**1399**	**1456**	**1514**	**1572**	**1590**	**1648**	**1706**	**1764**	**1822**	**1880**	**1938**	**1956**	**2014**
F.	185°·59	156·2	220·0	178·9	137·8	96·7	107·4	66·3	25·1	340·2	308·1	267·0	277·7	236·6	195·5	154·4	113·3	72·2	31·1	41·8	0·7
N.	170°·26	171·0*	*−234·8*	193·7	152·6*	*111·5*	*122·2*	*81·1*	*39·9*	*−364·0*	*−323·9*	*−282·8*	*−292·5*	*−251·4*	*210·3*	*169·2*	*128·1*	*87·0*	*45·9*	*56·6*	*15·5*
N.	16°·91	*318·7*	*17·2*	*341·3*	*300·2*	*259·1*	*269·8*	*228·7*	*187·5*	*146·4*	*105·3*	*64·2*	*74·9*	*33·8*	*−357·9*	*316·8*	*275·7*	*234·6*	*193·5*	*204·2*	*163·1*
F.	1°·57	333·4	32·0	−356·1	315·0	273·9	284·6	243·5	202·3	161·2	120·1	79·0	89·7	48·6	7·5	331·6	290·5	249·4	208·3	219·0	177·9
N.	346°·24	−348·1	46·7	*5·6*	*−329·7*	−288·6*	−299·3	−258·2*	217·0	175·9	134·8	93·7	104·4	63·3	22·2*	*−346·3*	−305·2*	−264·1	−223·0	−233·7	192·6

TABLE IV-L—*cont.*

Cycles of recurrence of Eclipses—Solar and Lunar—*cont.*

		0	57	115	173	191	249	307	365	423	481	539	557	614	672	730	788	846	864	922	980
			Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
			324·1	283·0	241·9	252·6	211·5	170·4	129·3	88·2	47·1	6·0	16·7	340·8	299·7	258·6	217·5	176·6	187·1	146·0	104·9
		Cyclic variation; add algebraically to fig. in col. 2.	−·08	−·17	−·25	+·22	+·14	+·05	−·03	−·12	−·20	−·29	+·18	+·10	+·01	−·07	−·16	−·24	+·23	+·15	+·06
			Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.	Yrs. Dys.
	Sun from node.	Successive differences.	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+58 −41·1	+18 +10·7	+58 −41·1	+58 −41·1	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
		A.D. 54	**112**	**170**	**228**	**246**		**361**	**419**	**477**	**535**		**593**	**611**	**669**	**727**	**785**		**900**	**918**	**976**	**1034**
N.	192°·88	130·6	89·4	48·3	7·2	17·9	312·0*	*309·9*	259·8*	*218·7*	177·6*	N.	136·5	*147·2*	*106·1*	65·0*	23·9	348·0*	306·9	317·6	*276·5*	*235·4*
F.	177°·55	145·3	104·2	63·1	22·0	32·7	−356·8	315·7	274·3	233·5	192·4	F.	151·3	162·0	120·9	79·8	38·7	−362·8	321·7	332·4	291·3	250·2
N.	162°·21	*160·1*	*119·9*	77·8	*36·7*	*47·4*	*6·3*	*−330·4*	*−289·3*	*−248·2*	*207·1*	N.	*166·0*	*176·7*	*135·6*	*94·5*	*53·4*	*12·3*	−336·4*	*−347·1*	*−306·0*	*−264·9*
		(penumbral.)																				
N.	8°·86	*307·8*	*266·6*	*225·5*	*184·4*	*195·1*	*154·0*	*112·9*	71·8	*30·7*	−354·8	N.	313·7*	*324·4*	*283·3*	*242·2*	*201·1*	160·0*	*118·9*	*129·6*	*88·5*	47·4*
F.	353°·52	−322·5	−281·4	−240·3	199·2	−209·9	168·8	127·7	86·6	45·5	4·4	F.	−38·5	−339·2	−298·1	−257·0	−215·9	174·8	133·7	144·4	103·3	62·2
		A.D. 55	**113**	**171**		**247**	**304**	**362**	**420**	**478**	**536**		**594**	**612**	**670**	**728**	**786**	**843**	**901**	**919**	**977**	**1035**
N.	184°·84	119·7*	78·5	37·4	−361·5	7·0*	331·1	290·0*	*249·9*	207·8	166·7	N.	125·6*	136·3	95·2*	54·1	13·0*	337·1*	296·0	306·7*	265·6*	*224·5*
F.	169°·50	134·5	93·3	52·2	*11·1*	*21·8*	*−345·9*	*−304·8*	*−263·7*	*−222·6*	181·5	F.	140·4	151·1	110·0	68·9	*27·8*	*−351·9*	−310·8	*−321·5*	−280·4	−239·3
N.	0°·81	*296·9*	255·7*	*214·6*	173·5*	*184·3*	143·1*	*102·0*	60·9	19·8*	343·9	N.	302·8*	*313·5*	272·4*	231·3*	190·2*	*149·1*	108·0*	118·7*	77·6*	36·5*
F.	345°·48	*−311·6*	*−270·5*	*−229·4*	*188·3*	199·0	157·9	*116·8*	*75·7*	*34·6*	*−358·7*	F.	*−317·6*	*−328·3*	*−287·2*	*−246·1*	−205·0	*165·9*	*122·8*	*133·5*	*92·4*	*51·3*
		A.D. 56	**114**	**172**	**229**		**305**	**363**	**421**	**479**	**537**		**595**	**613**	**671**	**729**	**787**	**844**	**902**	**920**	**978**	**1036**
F.	192°·13	*194·0*	*52·9*	11·8	335·9	346·6	*305·5*	*264·4*	*223·3*	*182·2*	*141·1*	F.	*100·0*	*110·7*	*69·6*	28·5	−352·7	311·5	270·4	281·1	*240·0*	*198·9*
N.	176°·79	108·8	67·6*	*26·5*	*−359·6*	*−361·3*	−320·2*	−279·1	−238·0*	197·9*	155·8	N.	114·7	125·4*	84·3	*43·2*	2·1*	−326·2*	*−285·1*	−295·8*	−254·8*	−213·6*
F.	8°·10	271·2	230·1	189·0	147·9	158·6	117·5	76·4	35·3	*−359·4*	318·3	F.	277·2	287·9	246·8	205·7	164·6	123·5	82·4	93·1	52·0	10·9
N.	352°·77	−286·0*	−244·8*	203·7*	162·6	173·3	132·2*	91·1*	50·0	8·9	−333·0*	N.	−291·9	*−302·6*	−261·5*	−220·4*	179·3*	138·2*	97·1	107·8*	66·7	25·6
		A.D. 57	**115**		**230**	**248**	**306**	**364**	**422**	**480**	**538**		**596**	**614**	**672**	**730**		**845**	**903**	**921**	**979**	**1037**
N.	199°·42	*68·4*	*27·2*	*−351·3*	*310·2*	*320·9*	*279·8*	*238·7*	*197·6*	*156·5*	*115·4*	N.	*74·3*	*85·0*	*43·9*	*2·8*	*326·9*	*285·8*	*244·7*	*255·4*	*214·3*	*173·2*
F.	184°·08	83·1	41·9	0·8	324·9	335·6	294·5	253·4	212·3	171·2	130·1	F.	89·0	99·7	58·6	17·5	341·6	300·5	259·4	270·1	229·0	187·9
N.	168°·74	*97·9*	*56·7*	*15·6*	*−339·7*	*−350·4*	*−309·3*	*−268·2*	*−227·1*	186·0*	*144·9*	N.	*103·8*	*114·5*	73·4*	*32·3*	*−356·4*	*−315·3*	*−274·2*	*−284·9*	*−243·8*	*202·7*
N.	15°·39	*245·5*	*204·4*	*163·3*	*122·2*	*132·9*	*91·8*	*50·7*	*9·6*	*333·7*	*292·6*	N.	*251·5*	*262·2*	*221·1*	*180·0*	*138·9*	*97·8*	*56·7*	*67·4*	*26·3*	*−350·4*
F.	0°·06	260·3	219·2	178·1	137·0	147·7	106·6	65·5	24·4	348·5	307·4	F.	266·3	277·0	235·9	194·8	153·7	112·6	71·5	82·2	41·1	0·0
N.	344°·7	*−275·1*	*−233·9*	*192·8*	151·7	162·4	121·3	80·2*	39·1	*−363·2*	*−322·1*	N.	*−281·0*	*−291·7*	*−250·6*	209·5	*168·4*	126·3	86·2	96·9	55·8*	*14·7*
		A.D. 58	**116**	**173**	**231**	**249**	**307**	**365**	**423**	**481**	**539**		**597**	**615**	**673**		**788**	**846**	**904**	**922**	**980**	**1038**
N	191°·37	57·5	16·3	340·4	299·3	310·0	*268·9*	*227·8*	*186·7*	145·6*	104·5	N.	63·4	74·1	33·0	−357·1	316·0*	274·9*	233·8*	244·5	*203·4*	162·3
F.	176°·03	72·2	31·1	−355·2	314·1	324·8	283·7	242·6	201·5	160·4	119·3	F.	78·2	88·9	47·8	6·7	330·8	289·7	248·6	259·3	218·2	177·1
N.	160°·70	*87·0*	*45·8*	4·7	*−328·8*	*−339·5*	*−298·4*	*−257·3*	*−216·2*	*175·1*	*134·0*	N.	*92·9*	*103·6*	*62·5*	*21·4*	*−345·5*	*−304·4*	*−263·3*	*−274·0*	*−232·9*	*191·8*
N.	7°·35	*334·7*	*193·3*	**174** 152·4	**232** 111·3	**250** 123·0	**308** 80·9	**366** 39·8	*−363·9*	*322·8*	281·7*	**731**				**789** 128·0	**847** 86·9	**905** 45·8*	**923** 56·5	**981** 15·4*	*339·5*
F.	352°·01	249·4	208·3	167·2	126·1	136·8	95·7	54·6	**424** 13·5	−337·6	296·5	F.	255·4	267·1	225·0	183·9	142·8	101·7	60·6	71·3	30·2	**354·3**

TABLE IV-L—*cont.*

Cycles of recurrence of Eclipses—Solar and Lunar—*cont.*

	0	Yrs. Dys. 1038 68·8	Yrs. Dys. 1096 22·7	Yrs. Dys. 1153 346·8	Yrs. Dys. 1211 305·7	Yrs. Dys. 1229 316·4	Yrs. Dys. 1287 275·3	Yrs. Dys. 1345 234·1	Yrs. Dys. 1403 193·1	Yrs. Dys. 1461 152·0
Cyclic variation; add algebraically to fig. in col. 2.		−·02	−·11	−·19	−·28	+·19	+·11	+·02	−·06	−·15
Sun from node.	Successive differences.	Yrs. Dys. +58 −41·1 (23)	Yrs. Dys. +58 −41·1 (24)	Yrs. Dys. +58 −41·1 (25)	Yrs. Dys. +58 −41·1 (26)	Yrs. Dys. +18 +10·7 (27)	Yrs. Dys. +58 −41·1 (28)	Yrs. Dys. +58 −41·1 (29)	Yrs. Dys. +58 −41·1 (30)	Yrs. Dys. +58 −41·1 (31)
	A.D. 54	**1092**	**1150**	**1208**	**1266**	**1284**	**1342**		**1457**	**1515**
N. 192°·88	130·6	*194·3*	153·2	112·1	71·0	81·7*	40·6*	−364·6*	*328·5*	282·4*
F. 177°·55	145·3	209·1	168·0	126·9	85·8	96·5	55·4	14·2	338·3	297·2
N. 162°·21	*160·1*	*−325·8*	*182·7*	*141·6*	*100·5*	*111·2*	*70·1*	*28·9*	*−353·0*	*−311·9*
	(penumbral)									
N. 8°·86	*307·8*	*6·3*	330·4*	*289·3*	*248·2*	*258·9*	*217·8*	*176·6*	*135·5*	*94·4*
F. 353°·52	−322·5	21·1	−345·2	−304·1	−263·0	278·7	−232·6	191·4	150·3	109·2
	A.D. 55	**1093**	**1151**	**1209**	**1267**	**1285**	**1343**	**1400**	**1453**	**1516**
N. 184°·84	119·7*	183·4*	142·3	101·2	60·1*	70·8	29·7*	−353·7*	312·6*	271·5
F. 169°·50	134·5	198·2	157·1	116·0	74·9	85·6	*44·5*	3·3	*−327·4*	*−286·3*
N. 0°·81	*296·9*	−360·6*	319·5*	278·4	*237·3*	248·0*	206·9*	165·7*	124·6	83·5*
F. 345°·48	*−311·6*	*10·2*	*−334·3*	*−293·2*	*−252·1*	*−262·8*	*−221·7*	*180·5*	*139·4*	*98·3*
	A.D. 56	**1094**	**1152**	**1210**	**1268**	**1286**	**1344**	**1401**	**1459**	**1517**
F. 192°·18	*194·0*	*157·8*	*116·7*	75·6	34·5	*45·2*	4·0	328·0	287·0	245·9*
N. 176°·79	108·8	*172·5*	131·4	*90·3*	49·2	*59·9*	*18·8*	−342·8*	*−301·7*	−260·6
F. 8°·10	271·2	335·0	293·9	252·8	211·7	222·4	181·3	140·1	99·0	57·9
N. 352°·77	−286·0*	*−349·7*	−308·6*	−267·5	−226·4*	−237·1	196·0*	*154·8*	113·7*	72·6*
	A.D. 57	**1095**	**1153**	**1211**	**1269**	**1287**		**1402**	**1460**	**1518**
N. 199°·42	*68·4*	*132·1*	*91·0*	*49·9*	*8·8*	*19·5*	*343·6*	*302·4*	*261·3*	*220·2*
F. 184°·08	83·1	146·8	105·7	64·6	23·5	34·2	−358·3	317·1	276·0	234·9
N. 168°·74	*97·9*	*161·6*	120·5*	*79·4*	*38·3*	*49·0*	*7·9*	*−331·9*	*−290·8*	*−249·7*
N. 15°·39	*245·5*	*309·3*	*268·2*	*227·1*	*186·0*	*196·7*	*155·6*	*114·4*	*73·3*	*32·2*
F. 0°·06	260·3	324·1	283·0	241·9	200·8	211·5	170·4	129·2	88·1	47·0
N. 344°·7	*−275·1*	*−338·8*	*−297·7*	*−256·6**	*215·5*	−226·2*	185·1*	143·9	102·8*	61·7
	A.D. 58	**1096**	**1154**	**1212**		**1288**	**1345**	**1403**	**1461**	**1519**
N. 191°·37	57·5	121·2	80·1	39·0	−363·1*	8·6	332·7*	*291·5*	250·4*	209·3
F. 176°·03	72·2	136·0	94·9	53·8	12·7	23·4	347·5	306·3	265·2	224·1
N. 160°·70	*87·0*	*150·7*	*109·6*	*68·5*	*27·4*	*38·1*	*−362·2*	*−321·0*	*−279·9*	*−238·8*
N. 7°·35	*334·7*	208·4*	*257·3*	*216·2*	*175·1*	*185·8*	144·7	*103·5*	62·4*	*21·3*
F. 352°·01	249·4	313·2	272·1	231·0	189·9	200·6	159·5	118·3	77·2	36·1

	0	Yrs. Dys. 1519 110·9	Yrs. Dys. 1537 121·6	Yrs. Dys. 1595 80·5	Yrs. Dys. 1653 39·4	Yrs. Dys. 1710 363·5	Yrs. Dys. 1768 322·4	Yrs. Dys. 1826 281·3	Yrs. Dys. 1884 240·2	Yrs. Dys. 1902 250·9	Yrs. Dys. 1960 209·8
Cyclic variation; add algebraically to fig. in col. 2.		−·23	+·24	+·16	+·07	+·00	−·08	−·17	+·25	+·22	+·14
Sun from node.	Successive differences.	Yrs. Dys. +58 −41·1 (32)	Yrs. Dys. +18 +10·7 (33)	Yrs. Dys. +58 −41·1 (34)	Yrs. Dys. +58 −41·1 (35)	Yrs. Dys. +58 −41·1 (36)	Yrs. Dys. +58 −41·1 (37)	Yrs. Dys. +58 −41·1 (38)	Yrs. Dys. +58 −41·1 (39)	Yrs. Dys. +18 +10·7 (40)	Yrs. Dys. +58 −41·1 (41)
	A.D. 54	**1573**	**1591**	**1649**	**1707**	**1765**	**1823**	**1881**	**1939**	**1957**	
N. 192°·88	130·6	241·3	252·0	210·9	*169·8*	128·7	87·6	46·5*	5·4	16·1*	*340·2*
F. 177°·55	145·3	256·1	266·8	225·7	184·6	143·5	102·4	61·3	20·2	30·9	−355·0
N. 162°·21	*160·1*	*−270·8*	*−281·5*	*−240·4*	*199·3*	*158·2*	*117·1*	*76·0*	*34·9*	*45·6*	*4·5*
	(penumbral)										
N. 8°·86	*307·8*	*53·3*	*64·0*	*22·9*	317·0*	305·9*	*264·8*	*223·7*	*182·6*	193·3	*152·3*
F. 353°·52	−322·5	68·1	78·8	37·7	*−361·8*	−320·7	−279·6	−238·5	197·4	−208·1	167·0
	A.D. 55	**1574**	**1592**	**1650**	**1708**	**1766**	**1824**	**1882**		**1958**	**2015**
N. 184°·84	119·7*	230·4	241·1	200·0*	158·9*	117·8	76·7*	35·6*	*−359·7*	5·2*	329·3*
F. 169°·50	134·5	−245·2	−255·9	−214·8	173·7	132·6	91·5	*50·4*	*9·3*	20·0	*−344·1*
N. 0°·81	*296·9*	42·4*	53·1*	*12·0*	336·1*	295·0*	253·9*	212·8	171·7	*182·4*	141·3*
F. 345°·48	*−311·6*	*57·3*	*67·9*	*26·8*	*−350·9*	*−309·8*	*−268·7*	*−227·6*	*186·5*	*197·2*	*156·1*
	A.D. 56	**1575**	**1593**	**1651**	**1709**	**1767**	**1825**	**1883**	**1940**		**2016**
F. 192°·18	*194·0*	*204·8*	215·5*	*174·4*	*133·3**	*92·2*	51·6	10·0	334·1	344·8	*304·7*
N. 176°·79	108·8	*−219·5*	−230·2	*189·1*	140·0	*100·9*	65·8*	*24·7*	*−348·8*	*−359·5*	*−318·4*
F. 8°·10	271·2	16·8	27·5	−351·6	310·5	269·4	228·3	187·2	146·1	156·8	115·7
N. 352°·77	−286·0*	31·5	42·2*	1·1*	−325·2	*−284·1*	*−243·0*	201·9	160·8*	171·5	130·4
	A.D. 57	**1576**	**1594**	**1652**	**1710**	**1768**	**1826**		**1941**	**1959**	**2017**
N. 199°·42	*68·4*	*179·1*	*189·8*	*148·7*	*107·6*	*66·5*	*25·4*	349·5	*308·4*	*319·1*	*278·0*
F. 184°·08	83·1	193·8	204·5	163·4	122·3	81·2	40·1	−364·2	323·1	333·8	292·7
N. 168°·74	*97·9*	*208·6*	*−219·3*	*178·2*	*137·1*	96·0*	*54·9*	*13·8*	*−337·9*	*−348·6*	*−307·5*
N. 15°·39	*245·5*	*−356·3*	*1·8*	*325·9*	*284·8*	*243·7*	*202·6*	*161·5*	*120·4*	*131·1*	*90·0*
F. 0°·06	260·3	5·9	16·6	340·1	299·6	258·5	217·4	176·3	135·2	145·9	104·8
N. 344°·7	*−275·1*	*20·6*	*31·3*	*−355·4**	*−314·3*	*−273·2**	*−232·1*	191·0	150·0	160·6	*119·5*
	A.D. 58	**1577**	**1595**	**1653**	**1711**	**1769**	**1827**	**1884**	**1942**	**1960**	**2018**
N. 191°·37	57·5	168·2	178·9*	*137·8*	96·7	55·6*	14·5*	*338·6*	297·5	308·2*	267·1
F. 176°·03	72·2	183·0	193·7	152·6	111·5	70·4	29·3	−353·4	312·3	323·0	281·9
N. 160°·70	*87·0*	*197·7*	*208·4*	*167·3*	*126·2*	*85·1*	*44·0*	*2·9*	*−327·0*	*−337·7*	*−296·6*
N. 7°·35	*334·7*	345·4*	*−356·1*	315·0*	273·9*	*232·8*	*191·7*	*150·6*	*109·5*	120·2	*79·1*
F. 352°·01	249·4	360·2	5·7	329·8	288·7	247·6	206·5	165·4	124·3	135·0	93·9

1270 1346 1404 1462 1520 1596 1885 1943 1961 2019

TABLE IV-M—EXPLANATORY NOTES

Showing for each century A.D. the days of English calendar months corresponding to days of the Inaian Solar year.

This table will be found equally useful for Table IV-L and for Tables V-A and V-B.

2. It shows, within a day or two, the English equivalent of the reckoning by completed days of the Indian Solar year.

3. The heavy type figures running horizontally are the centuries A.D. The heavy type figures running vertically are days of the Indian Solar year. Only every fourth day of the Indian Solar year is shown in order to economize space.

4. The century beginning with A.D. 1600 is shown twice, once to indicate the reckoning in the United Kingdom where the new style was not adopted till A.D. 1752, and again to indicate the reckoning in continental countries which adopted the new style on 15th October A.D. 1582.

5. For odd years in a century use the figure given in the table for the nearest century year. Thus for 1 January A.D. 640, use the figure which corresponds to 1 January A.D. 700, *i.e.*, 286 days of the Indian Solar year. The year A.D. 600 does not appear in the table and A.D. 550 which appears there was not so near to A.D. 640 as A.D. 700 was.

TABLE IV-M.

Correspondence of English calendar and days of the Indian Solar year A.D. 0 to A.D. 2000.

(New stylo countries) New style (European countries, exc. Russia).

Days of the Indian Solar year.	A.D. 0	A.D. 100	A.D. 200	A.D. 350	A.D. 450	Days of the Indian Solar year.	A.D. 550	A.D. 700	A.D. 800	A.D. 900	A.D. 1000	Days of the Indian Solar year.	A.D. 1150	A.D. 1250	A.D. 1350	A.D. 1500	A.D. 1600	Days of the Indian Solar year.	A.D. 1600	A.D. 1750	A.D. 1775	A.D. 1800	A.D. 1850	A.D. 1900	A.D. 1950
0	Mr. 15	Mr. 16	Mr. 17	Mr. 18	Mr. 19	**0**	Mr. 20	Mr. 21	Mr. 22	Mr. 23	Mr. 24	**0**	Mr. 25	Mr. 26	Mr. 27	Mr. 28	Mr. 29	**0**	Ap. 8	Ap. 9	Ap. 10	Ap. 11	Ap. 12	Ap. 13	Ap. 14
4	19	20	21	22	23	**4**	24	25	26	27	28	**4**	29	30	31	Ap. 1	Ap. 2	**4**	12	13	14	15	16	17	18
8	23	24	25	26	27	**8**	28	29	30	31	Ap. 1	**8**	Ap. 2	Ap. 3	Ap. 4	5	6	**8**	16	17	18	19	20	21	22
12	27	28	29	30	31	**12**	Ap. 1	Ap. 2	Ap. 3	Ap. 4	Ap. 5	**12**	6	7	8	9	10	**12**	20	21	22	23	24	25	26
16	31	Ap. 1	Ap. 2	Ap. 3	Ap. 4	**16**	5	6	7	8	9	**16**	10	11	12	13	14	**16**	24	25	26	27	28	29	30
20	Ap. 4	5	6	7	8	**20**	9	10	11	12	13	**20**	14	15	16	17	18	**20**	28	29	30	My. 1	My. 2	My. 3	My. 4
24	8	9	10	11	12	**24**	13	14	15	16	17	**24**	18	19	20	21	22	**24**	My. 2	My. 3	My. 4	5	6	7	3
28	12	13	14	15	16	**28**	17	18	19	20	21	**28**	22	23	24	25	26	**28**	6	7	8	9	10	11	12
32	16	17	18	19	20	**32**	21	22	23	24	25	**32**	26	27	28	29	30	**32**	10	11	12	13	14	15	16
36	20	21	22	23	24	**36**	25	26	27	28	29	**36**	30	My. 1	My. 2	My. 3	My. 4	**36**	14	15	16	17	18	19	20
40	24	25	26	27	28	**40**	29	30	My. 1	My. 2	My. 3	**40**	My. 4	5	6	7	8	**40**	18	19	20	21	22	23	24
44	28	29	30	My. 1	My. 2	**44**	My. 3	My. 4	5	6	7	**44**	8	9	10	11	12	**44**	22	23	24	25	26	27	28
48	My. 2	My. 3	My. 4	5	6	**48**	7	8	9	10	11	**48**	12	13	14	15	16	**48**	26	27	28	29	30	31	Je. 1
52	6	7	8	9	10	**52**	11	12	13	14	15	**52**	16	17	18	19	20	**52**	30	31	Je. 1	Je. 2	Je. 3	Je. 4	Je. 5
56	10	11	12	13	14	**56**	15	16	17	18	19	**56**	20	21	22	23	24	**56**	Je. 3	Je. 4	5	6	7	8	9
60	14	15	16	17	18	**60**	19	20	21	22	23	**60**	24	25	26	27	28	**60**	7	8	9	10	11	12	13
64	18	19	20	21	22	**64**	23	24	25	26	27	**64**	28	29	30	31	Je. 1	**64**	11	12	13	14	15	16	17
68	22	23	24	25	26	**68**	27	28	29	30	31	**68**	Je. 1	Je. 2	Je. 3	Je. 4	5	**68**	15	16	17	18	19	20	21
72	26	27	28	29	30	**72**	31	Je. 1	Je. 2	Je. 3	Je. 4	**72**	5	6	7	8	9	**72**	19	20	21	22	23	24	25
76	30	31	Je. 1	Je. 2	Je. 3	**76**	Je. 4	5	6	7	8	**76**	9	10	11	12	13	**76**	23	24	25	26	27	28	29
80	Je. 3	Je. 4	5	6	7	**80**	8	9	10	11	12	**80**	13	14	15	16	17	**80**	27	28	29	30	Jl. 1	Jl. 2	Jl. 3
	0	**100**	**200**	**350**	**450**		**550**	**700**	**800**	**900**	**1000**		**1150**	**1250**	**1350**	**1500**	**1600**		**1600**	**1750**	**1775**	**1800**	**1850**	**1900**	**1950**
84	Je. 7	Je. 8	Je. 9	Je. 10	Je. 11	**84**	Je. 12	Je. 13	Je. 14	Je. 15	Je. 16	**84**	Je. 17	Je. 18	Je. 19	Je. 20	Je. 21	**84**	Jl. 1	Jl. 2	Jl. 3	Jl. 4	Jl. 5	Jl. 6	Jl. 7
88	11	12	13	14	15	**88**	16	17	18	19	20	**88**	21	22	23	24	25	**88**	5	6	7	8	9	10	11
92	15	16	17	18	19	**92**	20	21	22	23	24	**92**	25	26	27	28	29	**92**	9	10	11	12	13	14	15
96	19	20	21	22	23	**96**	24	25	26	27	28	**96**	29	30	Jl. 1	Jl 2	Jl. 3	**96**	13	14	15	16	17	18	19
100	23	24	25	26	27	**100**	28	29	30	Jl. 1	Jl. 2	**100**	Jl. 3	Jl. 4	5	6	7	**100**	17	18	19	20	21	22	23
104	27	28	29	30	Jl. 1	**104**	Jl. 2	Jl. 3	Jl. 4	5	6	**104**	7	8	9	10	11	**104**	21	22	23	24	25	26	27
108	Jl. 1	Jl. 2	Jl. 3	Jl. 4	5	**108**	6	7	8	9	10	**108**	11	12	13	14	15	**108**	25	26	27	28	29	30	31
112	5	6	7	8	9	**112**	10	11	12	13	14	**112**	15	16	17	18	19	**112**	29	30	31	Au. 1	Au. 2	Au. 3	Au. 4
116	9	10	11	12	13	**116**	14	15	16	17	18	**116**	19	20	21	22	23	**116**	Au. 2	Au. 3	Au. 4	5	6	7	8
120	13	14	15	16	17	**120**	18	19	20	21	22	**120**	23	24	25	26	27	**120**	6	7	8	9	10	11	12
	0	**100**	**300**	**350**	**450**		**550**	**700**	**800**	**900**	**1000**		**1150**	**1250**	**1350**	**1500**	**1600**		**1600**	**1750**	**1775**	**1800**	**1850**	**1900**	**1950**
124	17	18	19	20	21	**124**	22	23	24	25	26	**124**	27	28	29	30	31	**124**	10	11	12	13	14	15	16
128	21	22	23	24	25	**128**	26	27	28	29	30	**128**	31	Au. 1	Au. 2	Au. 3	Au. 4	**128**	14	15	16	17	18	19	20
132	25	26	27	28	29	**132**	30	31	Au. 1	Au. 2	Au. 3	**132**	Au. 4	5	6	7	8	**132**	18	19	20	21	22	23	24
136	29	30	31	Au. 1	Au. 2	**136**	Au 3	Au. 4	5	6	7	**136**	8	9	10	11	12	**136**	22	23	24	25	26	27	28
140	Au. 2	Au. 3	Au. 4	5	6	**140**	7	8	9	10	11	**140**	12	13	14	15	16	**140**	26	27	28	29	30	31	S. 1
144	6	7	8	9	10	**144**	11	12	13	14	15	**144**	16	17	18	19	20	**144**	30	31	S. 1	S. 2	S, 3	S. 4	S. 5
148	10	11	12	13	14	**148**	15	16	17	18	19	**148**	20	21	22	23	24	**148**	S. 3	S. 4	5	6	7	8	9
152	14	15	16	17	18	**152**	19	20	21	22	23	**152**	24	25	26	27	28	**152**	7	8	9	10	11	12	13
156	18	19	20	21	22	**156**	23	24	25	26	27	**156**	28	29	30	31	S. 1	**156**	11	12	13	14	15	16	17
160	22	23	24	25	26	**160**	27	28	29	30	31	**160**	S. 1	S. 2	S. 3	S. 4	5	**160**	15	16	17	18	19	20	21
	0	**100**	**200**	**350**	**450**		**550**	**700**	**800**	**900**	**1000**		**1150**	**1250**	**1350**	**1500**	**1600**		**1600**	**1750**	**1775**	**1800**	**1850**	**1900**	**1950**
164	26	27	28	29	30	**164**	31	S. 1	S. 2	S. 3	S. 4	**164**	5	6	7	8	9	**164**	19	20	21	22	23	24	25
168	30	31	S. 1	S. 2	S. 3	**168**	S. 4	5	6	7	8	**168**	9	10	11	12	13	**168**	23	24	25	26	27	28	29
172	S. 3	S. 4	5	6	7	**172**	8	9	10	11	12	**172**	13	14	15	16	17	**172**	27	28	29	30	O. 1	O. 2	O. 3
176	7	8	9	10	11	**176**	12	13	14	15	16	**176**	17	18	19	20	21	**176**	O. 1	O. 2	O 3	O. 4	5	6	7

TABLE IV-M—*cont.*

Correspondence of English Calendar and days of the Indian Solar year A.D. 0 to A.D. 2000—*cont.*

(New style countries) New style (European countries, exc. Russia).

Days of the Indian Solar year.	A.D.	A.D.	A.D.	A.D.	A.D.	Days of the Indian Solar year.	A.D.	A.D.	A.D.	A.D.	A.D.	Days of the Indian Solar year.	A.D.	A.D.	A.D.	A.D.	A.D.	Days of the Indian Solar year.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.	A.D.
	0	**100**	**200**	**350**	**450**		**550**	**700**	**800**	**900**	**1000**		**1150**	**1250**	**1350**	**1500**	**1600**		**1600**	**1750**	**1775**	**1775**	**1800**	**1850**	**1950**
180	11	12	13	14	15	**180**	16	17	18	19	20	**180**	21	22	23	24	25	**180**	5	6	7	8	9	10	11
184	15	16	17	18	19	**184**	20	21	22	23	24	**184**	25	26	27	28	29	**184**	9	10	11	12	13	14	15
188	19	20	21	22	23	**188**	24	25	26	27	28	**188**	29	30	O. 1	O. 2	O. 3	**188**	13	14	15	16	17	18	19
192	23	24	25	26	27	**192**	28	29	30	O. 1	O. 2	**192**	O 3	O. 4	5	6	7	**192**	17	18	19	20	21	22	23
196	27	28	29	30	O. 1	**196**	O. 2	O. 3	O. 4	5	6	**196**	7	8	9	10	11	**196**	21	22	23	24	25	26	27
200	O. 1	O. 2	O. 3	O. 4	5	**200**	6	7	8	9	10	**200**	11	12	13	14	15	**200**	25	26	27	28	29	30	31
	0	**100**	**200**	**350**	**450**		**550**	**700**	**800**	**900**	**1000**		**1150**	**1250**	**1350**	**1500**	**1600**		**1600**	**1750**	**1775**	**1800**	**1850**	**1900**	**1950**
204	5	6	7	8	9	**204**	10	11	12	13	14	**204**	15	16	17	18	19	**204**	29	30	31	N. 1	N. 2	N. 3	N. 4
208	9	10	11	12	13	**208**	14	15	16	17	18	**208**	19	20	21	22	23	**208**	N. 2	N. 3	N. 4	5	6	7	8
212	13	14	15	16	17	**212**	18	19	20	21	22	**212**	23	24	25	26	27	**212**	N. 6	7	8	9	10	11	12
216	17	18	19	20	21	**216**	22	23	24	25	26	**216**	27	28	29	30	31	**216**	N. 10	11	12	13	14	15	16
220	21	21	23	24	25	**220**	26	27	28	29	30	**220**	31	N. 1	N. 2	N. 3	N. 4	**220**	14	15	16	17	18	19	20
224	25	26	27	28	29	**224**	30	31	N. 1	N. 2	N. 3	**224**	N. 4	5	6	7	8	**224**	18	19	20	21	22	23	24
228	29	30	31	N. 1	N. 2	**228**	N. 3	N. 4	5	6	7	**228**	8	9	10	11	12	**228**	22	23	24	25	26	27	28
232	N. 2	N. 3	N. 4	5	6	**232**	7	8	9	10	11	**232**	12	13	14	15	16	**232**	26	27	28	29	30	D. 1	D. 2
236	6	7	8	9	10	**236**	11	12	13	14	15	**236**	16	17	18	19	20	**236**	30	D. 1	D. 2	D. 3	D. 4	5	6
240	10	11	12	13	14	**240**	15	16	17	18	19	**240**	20	21	22	23	24	**240**	D. 4	5	6	7	8	9	10
		100	**200**	**350**	**450**		**550**	**700**	**800**	**900**	**1000**		**1150**	**1250**	**1350**	**1500**	**1600**		**1600**	**1750**	**1775**	**1800**	**1850**	**1900**	**1950**
244	14	15	16	17	18	**244**	19	20	21	22	23	**244**	24	25	26	27	28	**244**	D. 8	D. 9	D. 10	D. 11	D. 12	D. 13	D. 14
248	18	19	20	21	22	**248**	23	24	25	26	27	**248**	28	29	30	D. 1	D. 2	**248**	12	13	14	15	16	17	18
252	22	23	24	25	26	**252**	27	28	29	30	D. 1	**252**	D 2	D. 3	D. 4	5	6	**252**	16	17	18	19	20	21	22
256	26	27	28	29	30	**256**	D. 1	D. 2	D. 3	D. 4	5	**256**	6	7	8	9	10	**256**	20	21	22	23	24	25	26
260	30	D. 1	D. 2	D. 3	D. 4	**260**	5	6	7	8	9	**260**	10	11	12	13	14	**260**	24	25	26	27	28	29	30
264	D. 4	5	6	7	8	**264**	9	10	11	12	13	**264**	14	15	16	17	18	**264**	28	29	30	31	Ja. 1	Ja. 2	Ja. 3
268	8	9	10	11	12	**268**	13	14	15	16	17	**268**	18	19	20	21	22	**268**	Ja. 1	Ja. 2	Ja. 3	Ja. 4	5	6	7
272	12	13	14	15	16	**272**	17	18	19	20	21	**272**	22	23	24	25	26	**272**	Ja. 5	6	7	8	9	10	11
276	16	17	18	19	20	**276**	21	22	23	24	25	**276**	26	27	28	29	30	**276**	Ja. 9	10	11	12	13	14	15
280	20	21	22	23	24	**280**	25	26	27	28	29	**280**	30	31	Ja. 1	Ja. 2	Ja 3	**280**	13	14	15	16	17	18	19
		100	**200**	**350**	**450**		**550**	**700**	**800**	**900**	**1000**		**1150**	**1250**	**1350**	**1500**	**1600**		**1600**	**1750**	**1775**	**1800**	**1850**	**1900**	**1950**
284	24	25	26	27	28	**284**	29	30	31	Ja. 1	Ja. 2	**284**	Ja 3	Ja. 4	5	6	7	**284**	17	18	19	20	21	22	23
288	28	29	30	31	Ja. 1	**288**	Ja. 2	Ja. 3	Ja. 4	5	6	**288**	7	8	9	10	11	**288**	21	22	23	24	25	26	27
292	Ja. 1	Ja. 2	Ja. 3	Ja. 4	5	**292**	6	7	8	9	10	**292**	11	12	13	14	15	**292**	25	26	27	28	29	30	31
296	5	6	7	8	9	**296**	10	11	12	13	14	**296**	15	16	17	18	19	**296**	29	30	31	F. 1	F. 2	F. 3	F. 4
300	9	10	11	12	13	**300**	14	15	16	17	18	**300**	19	20	21	22	23	**300**	F. 2	F. 3	F. 4	5	6	7	8
304	13	14	15	16	17	**304**	18	19	20	21	22	**304**	23	24	25	26	27	**304**	F. 6	7	8	9	10	11	12
308	17	18	19	20	21	**308**	22	23	24	25	26	**308**	27	28	29	30	31	**308**	F. 10	11	12	13	14	15	16
312	21	22	23	24	25	**312**	26	27	28	29	30	**312**	31	F. 1	F. 2	F 3	F. 4	**312**	14	15	16	17	18	19	20
316	25	26	27	28	29	**316**	30	31	F. 1	F. 2	F. 3	**316**	F 4	5	6	7	8	**316**	18	19	20	21	22	23	24
320	29	30	31	F. 1	F. 2	**320**	F. 3	F. 4	5	6	7	**320**	8	9	10	11	12	**320**	22	23	24	25	26	27	28
		100	**200**	**350**	**450**		**550**	**700**	**800**	**900**	**1000**		**1150**	**1250**	**1350**	**1500**	**1600**		**1600**	**1750**	**1775**	**1800**	**1850**	**1900**	**1950**
324	F. 2	F. 3	F. 4	F. 5	F. 6	**324**	7	8	9	10	11	**324**	12	13	14	15	16	**324**	26	27	28	Mr. 1	Mr. 2	Mr. 3	Mr. 4
328	6	7	8	9	10	**328**	11	12	13	14	15	**328**	16	17	18	19	20	**328**	Mr. 2	Mr. 3	Mr. 4	Mr. 5	6	7	8
332	10	11	12	13	14	**332**	15	16	17	18	19	**332**	20	21	22	23	24	**332**	6	7	8	9	10	11	12
336	14	15	16	17	18	**336**	19	20	21	22	23	**336**	24	25	26	27	28	**336**	10	11	12	13	14	15	16
340	18	19	20	21	22	**340**	23	24	25	26	27	**340**	28	Mr. 1	Mr. 2	Mr. 3	Mr. 4	**340**	14	15	16	17	18	19	20
344	22	23	24	25	26	**344**	27	28	Mr. 1	Mr. 2	Mr. 3	**344**	Mr. 4	5	6	7	8	**344**	18	19	20	21	22	23	24
348	26	27	28	Mr. 1	Mr. 2	**348**	Mr. 3	Mr. 4	5	6	7	**348**	8	9	10	11	12	**348**	22	23	24	25	26	27	28
352	Mr. 2	Mr. 3	Mr. 4	5	6	**352**	7	8	9	10	11	**352**	12	13	14	15	16	**352**	26	27	28	29	30	31	Ap. 1
356	6	7	8	9	10	**356**	11	12	13	14	15	**356**	16	17	18	19	20	**356**	30	31	Ap. 1	Ap. 2	Ap. 3	Ap. 4	Ap. 5
360	10	11	12	13	14	**360**	15	16	17	18	19	**360**	20	21	22	23	24	**360**	Ap. 3	Ap. 4	5	6	7	8	9
364	14	15	16	17	18	**364**	19	20	21	22	23	**364**	24	25	26	27	28	**364**	7	8	9	10	11	12	13

TABLE V-A—EXPLANATORY NOTE.

Tables V-A and V-B together constitute a Perpetual Planetary Almanac.

2. For illustrations of the use of Table V-A in conjunction with Table V-B see sections ii and iii, pages 98 to 125, Chapter V of this work.

3. The table is composed of two parts: columns 2, 3 and 4 give the increase of longitudes of the three major planets Mars, Jupiter and Saturn for 1, 2, 3, 4, 5 . . . up to 2,005 years. If the years are reckoned from 1 B.C., or A.D. 0 the years 1, 2, 3, 4, . , etc., up to 2005 in column 1 will be years A.D. and they are so marked; but the years may be reckoned from any year A.D. or B.C. For instance in paragraph 294 of this work the years in column 1 are reckoned from 3102 B.C. and on page 119 they are reckoned from 1101 B.C.

4. The years in column 1 of Table V-A may be reckoned backwards from any year B.C. or A.D. in which case the quantities in columns 2 to 4 will become decreases of longitude for so many years reckoned backwards. For an example see page 103, paragraph 255. In practice, however, as noted in paragraph 257, page 103, much inconvenience will be avoided by reckoning the years in column 1 of Table V-A always forward, as is done in paragraph 294, pages 118 and 119.

5. Columns 5 to 9 and 11 to 15 of Table V-A give the years of the current cycle (Table V-B) when each of the five planets Mars, Mercury, Jupiter, Venus and Saturn attained the same positions on successive days of the Indian solar year as they did in any given year A.D. entered in column 1 or in any B.C. year entered in column 10. For examples see pages 103, 118, 119 of text.

6. In applying the current cycle (Table V-B) in any given case, care should be taken to see that the day of the Indian solar year is not varied, see remarks in paragraph 3 of the explanatory note to Table V-B. It is for this reason that in the model problem of Rama's horoscope, worked out on pages 118, 119 of this work, the day of the Indian solar year corresponding to Mesha śukla navami is first ascertained in every case and entered in column 1 of the investigation tables on those pages.

7. For very accurate work, allowance should be made for the cyclic variations tabled below. Thus if we wish to know the position of the planet Jupiter on the 89th complete day of A.D. 634 (see paragraph 276, page 112 of the text) and use Tables V-A and V-B for that purpose, we shall find that against A.D. 634. Table V-A refers us to A.D. 1844 for information regarding Jupiter's places. From Table V-B we find that Jupiter's place on the 89th complete day of A.D. 1844 (by taking proportional parts as directed in explanatory note to Table V-B, paragraph 5) was 340·9°. The cyclic variation for the interval between A.D. 634 and A.D. 1844 or 1,210 years being $-2 \times \cdot 197$ or $-\cdot 394$, we deduct ·4 from 340·9 and conclude that Jupiter's place on 89th complete day of A.D. 634 was 340·5°.

8. The most convenient years from which a start may be made in Indian planetary investigations are 3201 B.C., 3102 B.C., 2101 B.C., 1101 B.C., 101 B.C., 1 B.C., A.D. 1000 A.D. 1800, and the mean longitudes of Mars, Jupiter and Saturn for every ten complete days in these years are therefore given at page 361 below. Suppose we wish to search for a horoscope for 4000 years beginning with 0 Kaliyuga, we make a start with 3102 B.C., and search for 2,000 years with the help of Table V-A and then make a start again with 1101 B.C., and search for another 2,000 years with the help of Table V-A. This is the plan followed in searching for Rama's horoscope—vide section iii, Chapter V of the text of this work.

TABLE V-A—Cyclic Variations.

[*N.B.*—The signs given below are for forward cycles. For cycles reckoned backwards, reverse the sign + or −.]

Period forward yrs.	Cyclic variation.	Analysis of cyclic variation.	Analysis of period.		
			Mars.		
	Degrees.		Years.		Degrees.
1	+191·4053				
79	+1·015				
284	−·908		284 + 79		+1·015 − ·908 = +·107
363	+·107		6 × 363 − 79 = 2178 − 79		+ ·64 − 1·01 = −·37
2099	−·37		7 × 363 − 79 = 2541 − 79		+ ·75 − 1·01 = −·268; or −·27
2462	−·26		10 × 363 − 79 = 3630 − 79		+1·070 − 1·015 = +·055
3551	+·055		3551 + 363; or 3630 + 284		+ ·055 + ·107; or 1·070 − ·908 = +·162
3914	+·162		3914 + 363		+ ·162 + ·107 = +·269 or +·27
4277	+·27		4277 + 2462		+ ·27 − ·26 = +·008
6739	+·008				

N.B.—**726, 1089, 1452, 1815, 2178, 2541, 2904, 3267** years are multiples of 363.

Mercury.

1	+54·7603				
46	−1·0259				
263	+1·98				
309	+0·9344				
355	−·09150				
2439	+·3854		6 × 355 + 309		+ ·9344 − ·5490 = +·3854
3859	+·0194		10 × 355 + 309		− ·9150 + ·9344 = ·0194
4214	−·0721		12 × 355 − 46		−1·0980 + 1·0259 = −·0721

N.B.—**710, 1065 1420, 1775, 2130, 2485, 2840, 3195, 3550, 3905, 4260** are multiples of 355.

Jupiter.

1	+30·347				
12	+4·1692				
83	−1·1630				
95	+3·0062		83 + 12 = 95		+4·1692 −1·1630 = +3·0062
178	+1·8431		95 + 83		+3·0062 −1·1630 = 1·8432
261	+·68009		178 + 83		+1·8431 −1·1630 = 0·6801
344	−·48294		261 + 83; or 4 × 83 + 12		+ ·68009 −1·16304 = −·48295
605	+·19714		344 + 261; or 7 × 83 + 24		+ ·68009 − ·48294 = +·19715
949	−·28580		605 + 344		+ ·19714 − ·48294 = −·28580

N.B.—**1210, 1815, 2420, 3025, 3630** years are multiples of 605 years.

1554	−·08866		1210 + 344		+·39428 − ·48294 = −·08866
1898	−·5716		1815 + 83; or 3 × 605 + 83		+·59142 − 1·1630 = −·5716
2159	+·1085		1898 + 261		−·5716 + ·6801 = +·1085
2503	−·3744		4 × 605 + 83		+·78856 − 1·1630 = −·3744
2764	+·3056		4 × 605 + 344		+·78856 − ·48294 = +·30562
3108	−·17732		2 × 1554		−·17732
3452	−·66026		2 × 1554 + 344		−·17732 − ·48294 = ·66026
3713	+·01983		3452 + 261		−·66026 + ·68009 = +·01983
4057	−·46311		3713 + 344		+·01983 − ·48294 = ·46311
4318	+·21694		8 × 1554 − 344		−·26600 + ·48294 = +·21694

Venus.

1	225·189801				
8	+1·518648				
235	− ·3897				2 × ·3897 = ·7794
470	− ·78		2 × 235		− ·7794 + 1·5186 = +·7392
478	+ ·74		2 × 235 + 8		−1·1691 + 1·5186 = +·3485
713	+ ·3485		3 × 235 + 8		−1·5588 + 1·5186 = −·0402
948	− ·0402		4 × 235 + 8		−2·3382 + 1·5186 = −·8196
1418	− ·8196		6 × 235 + 8		−2·3382 + 3·0372 = +·6990
1426	+ ·6990		6 × 235 + 2 × 8		− ·0804
1896	− ·0804		2 × 948		− ·0804 − ·3897 = −·4701
2131	− ·4701		2 × 948 + 235		− ·0804 + ·7392 = +·6588
2374	+ ·6588		2 × 948 + 478		− ·1206
2844	− ·1206		3 × 948		− ·1608
3792	− ·1608		4 × 948		− ·2010
4740	− ·2010		5 × 948		

N.B.—**1896, 2844, 3792, 4740, 5688** years are multiples of 948 years.

Saturn.

1	12·2191001				
59	+·926906				
265	−1·938474				
324	−1·011568				
383	−·084662				

Note.—**766, 1149, 1532, 1915, 2298, 2681, 3064, 3447, 3830, 4213** are multiples of 383.

2357	+ ·4187		6 × 383 + 59		−·5082 + ·9269 = +·4187
2740	+ ·3340		7 × 383 + 59		−·5929 + ·9269 = +·3340
3123	+ ·2493		8 × 383 + 59		−·6776 + ·9269 = +·2493
3506	+ ·1646		9 × 383 + 59		−·7623 + ·9269 = +·1646
3889	+ ·0803		10 × 383 + 59		−·8466 + ·9269 = +·0803
4272	− ·0048		11 × 383 + 59		−·9317 + ·9269 = −·0048

TABLE V-A.—Auxiliary Table.

Mean longitude of Mars, Jupiter and Saturn for every ten complete days in each of eight selected years from 3201 B.C. to A.D. 1800, which are suitable as fixed years for Table V-A and for investigations under Chapter V, section ii of the Text, pp. 98 to 109.

		Days.	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
Mars	3201 B.C.	..	117·9	123·1	128·4	133·6	138·9	144·1	149·3	154·6	159·8	165·1	170·3	175·5	180·8	186·0	191·3	196·5	201·7	207·0	212·2
	3102 B.C.	..	347·0	352·2	357·5	2·7	7·9	13·2	18·4	23·7	29·0	34·1	39·4	44·6	49·9	55·1	60·3	65·6	70·8	76·1	81·3
	2101 B.C.	..	63·7	68·9	74·2	79·4	84·7	90·0	95·1	100·4	105·6	110·9	116·1	121·3	126·6	131·9	137·1	142·3	147·5	152·8	158·0
	1101 B.C.	..	308·9	314·1	319·4	324·6	329·9	335·1	340·3	345·6	350·8	356·1	1·3	6·5	11·8	17·0	22·3	27·5	32·7	38·0	43·2
	101 B.C.	..	194·2	199·4	204·7	209·9	215·2	220·4	225·6	230·9	236·1	241·4	246·6	251·8	257·1	262·3	267·6	272·8	278·0	283·3	288·5
	1 B.C.	..	254·7	259·9	265·2	270·4	275·7	280·9	286·1	291·4	296·6	301·9	307·1	312·3	317·6	322·8	328·1	333·3	338·5	343·8	349·0
	A.D. 1000	..	140·0	145·2	150·5	155·7	161·0	166·2	171·4	176·7	181·9	187·2	192·4	197·6	202·9	208·1	213·4	218·6	223·8	229·1	234·3
	A.D. 1800	..	264·2	269·4	274·7	279·9	285·2	290·4	295·6	300·9	306·1	311·4	316·6	321·8	327·1	332·3	337·6	342·8	348·0	353·3	358·9
Jupiter	3201 B.C.	..	251·3	252·1	253·0	253·8	254·6	255·5	256·3	257·1	257·9	258·8	259·6	260·4	261·3	262·1	262·9	263·8	264·6	265·4	266·3
	3102 B.C.	..	15·7	16·5	17·4	18·2	19·0	19·8	20·7	21·5	22·3	23·2	24·0	24·8	25·7	26·5	27·3	28·2	29·0	29·8	30·7
	2101 B.C.	..	153·5	154·3	155·2	156·0	156·8	157·6	158·5	159·3	160·1	161·0	161·8	162·6	163·5	164·3	165·1	166·0	166·8	167·6	168·5
	1101 B.C.	..	261·0	261·8	262·7	263·5	264·3	265·1	266·0	266·8	267·6	268·5	269·3	270·1	271·0	271·8	272·6	273·5	274·3	275·1	276·0
	101 B.C.	..	8·4	9·2	10·1	10·9	11·7	12·5	13·4	14·2	15·0	15·9	16·7	17·5	18·4	19·2	20·0	20·9	21·7	22·5	23·3
	1 B.C.	..	163·2	164·0	164·9	165·7	166·5	167·3	168·2	169·0	169·8	170·7	171·5	172·3	173·2	174·1	174·8	175·7	176·5	177·3	178·2
	A.D. 1000	..	270·6	271·4	272·3	273·1	273.9	274·8	275·7	276·4	277·2	278·1	278·9	279·7	280·6	281·4	282·2	283·1	283·9	284·7	285·6
	A.D. 1800	..	68·6	69·4	70·3	71·1	71·9	72·7	73·6	74·4	75·2	76·1	76·9	77·7	78·6	79·4	80·2	81·1	81·9	82·7	83·5
Saturn	3201 B.C.	..	209·5	209·8	210·2	210·5	210·8	211·2	211·5	211·8	212·2	212·5	212·8	213·2	213·5	213·8	214·2	214·5	214·8	215·2	215·5
	3102 B.C.	..	339·2	338·5	339·9	340·2	340·5	340·9	341·2	341·5	341·9	342·2	342·5	342·9	343·2	343·5	343·9	344·2	344·5	344·9	345·2
	2101 B.C.	..	330·5	330·8	331·2	331·5	331·8	332·2	332·5	332·8	333·2	333·5	333·8	334·2	334·5	334·8	335·2	335·5	335·8	336·2	336·5
	1101 B.C.	..	309·6	309·9	310·3	310·6	310·9	311·3	311·6	311·9	312·3	312·6	312·9	313·3	313·6	313·9	314·3	314·6	314·9	315·3	315·6
	101 B.C.	..	288·6	288·9	289·3	289·6	289·9	290·3	290·6	290·9	291·3	291·6	291·9	292·3	292·6	292·9	293·3	293·6	293·9	294·3	294·6
	1 B.C.	..	70·5	70·8	71·2	71·5	71·8	72·2	72·5	72·8	73·2	73·5	73·8	74·2	74·5	74·8	75·2	75·5	75·8	76·2	76·5
	A.D. 1000	..	49·6	49·9	50·3	50·6	50·9	51·3	51·6	51·9	52·3	52·6	52·9	53·3	53·6	53·9	54·3	54·6	54·9	55·3	55·6
	A.D. 1800	..	104·9	105·2	105·6	105·9	106·2	106·6	106·9	107·2	107·6	107·9	108·2	108·6	108·9	109·2	109·6	109·9	110·2	110·6	110·9

		Days.	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360
Mars	3201 B.C.	..	217·5	222·7	228·0	233·2	238·4	243·7	249·0	254·1	259·4	264·7	269·9	275·1	280·3	285·6	290·8	296·1	301·3	306·5
	3102 B.C.	..	86·5	91·8	97·0	102·3	107·5	112·7	118·0	123·2	128·5	133·7	139·0	144·2	149·4	154·7	160·0	165·1	170·4	175·6
	2101 B.C.	..	163·3	168·5	173·7	179·0	184·2	189·5	194·7	199·9	205·2	210·4	215·7	220·9	226·1	231·4	236·6	241·9	247·1	252·3
	1101 B.C.	..	48·5	53·7	58·9	64·2	69·4	74·7	79·9	85·1	90·4	95·6	100·9	106·1	111·3	116·6	121·8	127·1	132·3	137·5
	101 B.C.	..	293·8	299·0	304·2	309·5	314·7	320·0	325·2	330·4	335·7	340·9	346·2	351·4	356·6	1·9	7·1	12·4	17·6	22·8
	1 B.C.	..	354·3	359·5	4·7	10·0	15·2	20·5	25·7	30·9	36·2	41·4	46·7	51·9	57·1	62·4	67·6	72·9	78·1	83·3
	A.D. 1000	..	239·6	244·8	250·0	255·3	260·5	265·8	271·0	276·2	281·5	286·7	292·0	297·2	302·4	307·7	312·9	318·2	323·4	328·6
	A.D. 1800	..	3·8	9·0	14·2	19·5	24·7	30·0	35·2	40·4	45·7	50·9	56·2	61·4	66·6	71·9	77·1	82·4	87·6	92·8
Jupiter	3201 B.C.	..	267·1	267·9	268·7	269·6	270·4	271·2	272·1	272·9	273·7	274·6	275·4	276·2	277·1	277·9	278·7	279·5	280·4	281·2
	3102 B.C.	..	31·5	32·3	33·1	34·0	34·8	35·6	36·5	37·3	38·1	39·0	39·8	40·6	41·5	42·3	43·1	43·9	44·8	45·6
	2101 B.C.	..	169·3	170·1	170·9	171·8	172·6	173·4	174·3	175·1	175·9	176·8	177·6	178·4	179·3	180·1	180·9	181·7	182·6	183·4
	1101 B.C.	..	276·8	277·6	278·8	279·3	280·1	280·9	281·8	282·6	283·4	284·3	285·1	285·9	286·8	287·6	288·4	289·2	290·1	290·9
	101 B.C.	..	24·2	25·0	25·8	26·7	27·5	28·3	29·2	30·0	30·8	31·7	32·5	33·3	34·2	35·0	35·8	36·6	37·5	38·3
	1 B.C.	..	179·0	179·8	180·6	181·5	182·3	183·1	184·0	184·8	185·6	186·5	187·3	188·1	189·0	189·8	190·6	191·4	192·3	193·1
	A.D. 1000	..	286·4	287·2	288·0	288·9	289·7	290·5	291·4	292·2	293·0	293·9	294·7	295·5	296·4	297·2	298·0	298·8	299·7	300·5
	A.D. 1800	..	84·4	85·2	86·0	86·9	87·7	88·5	89·4	90·2	91·0	91·9	92·7	93·5	94·4	95·2	96·0	96·8	97·7	98·5
Saturn	3201 B.C.	..	215·8	216·2	216·5	216·8	217·2	217·5	217·8	218·2	218·5	218·8	219·2	219·5	219·8	220·2	220·5	220·8	221·2	221·5
	3102 B.C.	..	345·5	345·9	346·2	346·5	346·9	347·2	347·5	347·9	348·2	348·5	348·9	349·2	349·5	349·9	350·2	350·5	350·9	351·2
	2101 B.C.	..	336·8	337·2	337·5	337·8	338·2	338·5	338·8	339·2	339·5	339·8	340·2	340·5	340·8	341·2	341·5	341·8	342·2	342·5
	1101 B.C.	..	315·9	316·3	316·6	316·9	317·3	317·6	317·9	318·3	318·6	318·9	319·3	319·6	319·9	320·3	320·6	320·9	321·3	321·6
	101 B.C.	..	294·9	295·3	295·6	295·9	296·3	296·6	296·9	297·3	297·6	297·9	298·3	298·6	298·9	299·3	299·6	299·9	300·3	300·6
	1 B.C.	..	76·8	77·2	77·5	77·8	78·2	78·5	78·8	79·2	79·5	79·8	80·2	80·5	80·8	81·2	81·5	81·8	82·2	82·5
	A.D. 1000	..	55·9	56·3	56·6	56·9	57·3	57·6	57·9	58·3	58·6	58·9	59·3	59·6	59·9	60·3	60·6	60·9	61·3	61·6
	A.D. 1800	..	111·2	111·6	111·9	112·2	112·6	112·9	113·2	113·6	113·9	114·2	114·6	114·9	115·2	115·6	115·9	116·2	116·6	116·9

TABLE V-A.

Yearly increase of mean longitude of Mars, Jupiter and Saturn for 2005 years; also actual geocentric place of each planet with reference to Table V-B.

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	B.C.	Mars.	Merc.	Jup.	Venus.	Sat.
		Degrees.		A.D.	A.D.	A.D.	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
1	191	30	12	1816	1776	1816	1897	1916	1	1815	1775	1815	1896	1915
2	23	61	24	1817	1777	1817	1898	1917	2	1814	1774	1814	1895	1914
3	214	91	37	1818	1778	1818	1899	1918	3	1813	1773	1813	1894	1913
4	46	121	49	1819	1779	1819	1900	1919	4	1812	1772	1812	1893	1912
5	237	152	61	1820	1780	1820	1901	1920	5	1811	1771	1811	1892	1911
6	68	182	73	1821	1781	1821	1902	1921	6	1810	1770	1810	1891	1910
7	260	212	86	1822	1782	1822	1903	1922	7	1809	1769	1809	1890	1909
8	91	243	98	1823	1783	1823	1904	1923	8	1808	1768	1808	1889	1908
9	283	273	110	1824	1784	1824	1905	1924	9	1807	1767	1807	1888	1907
10	114	303	122	1825	1785	1825	1906	1925	10	1806	1766	1806	1887	1906
11	305	334	134	1826	1786	1826	1907	1926	11	1805	1765	1805	1886	1905
12	137	4	147	1827	1787	1827	1908	1927	12	1804	1764	1804	1885	1904
13	328	35	159	1828	1788	1828	1909	1928	13	1803	1763	1803	1884	1903
14	160	65	171	1829	1789	1829	1910	1929	14	1802	1762	1802	1883	1902
15	351	95	183	1830	1790	1830	1911	1930	15	1801	1761	1801	1882	1901
16	183	126	196	1831	1791	1831	1912	1931	16	1800	1760	1800	1881	1900
17	14	156	208	1832	1792	1832	1913	1932	17	1799	1759	1799	1880	1899
18	205	186	220	1833	1793	1833	1914	1933	18	1798	1758	1798	1879	1898
19	37	217	232	1834	1794	1834	1915	1934	19	1797	1757	1797	1878	1897
20	228	247	244	1835	1795	1835	1916	1935	20	1796	1756	1796	1877	1896
21	60	277	257	1836	1796	1836	1917	1936	21	1795	1755	1795	1876	1895
22	251	308	269	1837	1797	1837	1918	1937	22	1794	1754	1794	1875	1894
23	82	338	281	1838	1798	1838	1919	1938	23	1793	1753	1793	1874	1893
24	274	8	293	1839	1799	1839	1920	1939	24	1792	1752	1792	1873	1892
25	105	39	305	1840	1800	1840	1921	1940	25	1791	1751	1791	1872	1891
26	296	69	318	1841	1801	1841	1922	1941	26	1790	1750	1790	1871	1890
27	128	99	330	1842	1802	1842	1923	1942	27	1789	1749	1789	1870	1889
28	319	130	342	1843	1803	1843	1924	1943	28	1788	1748	1788	1869	1888
29	151	160	354	1844	1804	1844	1925	1944	29	1787	1747	1787	1868	1887
30	342	190	7	1845	1805	1845	1926	1945	30	1786	1746	1786	1867	1886
31	174	221	19	1846	1806	1846	1927	1946	31	1785	1745	1785	1866	1885
32	5	251	31	1847	1807	1847	1928	1947	32	1784	1744	1784	1865	1884
33	196	281	43	1848	1808	1848	1929	1948	33	1783	1743	1783	1864	1883
34	28	312	55	1849	1809	1849	1930	1949	34	1782	1742	1782	1863	1882
35	219	342	68	1850	1810	1850	1931	1950	35	1781	1741	1781	1862	1881
36	51	13	80	1851	1811	1851	1932	1951	36	1780	1740	1780	1861	1880
37	242	43	92	1852	1812	1852	1933	1952	37	1779	1739	1779	1860	1879
38	73	73	104	1853	1813	1853	1934	1953	38	1778	1738	1778	1859	1878
39	265	104	117	1854	1814	1854	1935	1954	39	1777	1737	1777	1858	1877
40	96	134	129	1855	1815	1855	1936	1955	40	1776	1736	1776	1857	1876
41	288	164	141	1856	1816	1856	1937	1956	41	1775	1735	1775	1856	1875
42	119	195	153	1857	1817	1857	1938	1957	42	1774	1734	1774	1855	1874
43	310	225	165	1858	1818	1858	1939	1958	43	1773	1733	1773	1854	1873
44	142	225	178	1859	1819	1859	1940	1959	44	1772	1732	1772	1853	1872
45	333	286	190	1860	1820	1860	1941	1960	45	1771	1731	1771	1852	1871
46	165	316	202	1861	1821	1861	1942	1961	46	1770	1730	1770	1851	1870
47	356	346	214	1862	1822	1862	1943	1962	47	1769	1729	1769	1850	1869
48	187	17	227	1863	1823	1863	1944	1963	48	1768	1728	1768	1849	1868
49	19	47	239	1864	1824	1864	1945	1964	49	1767	1727	1767	1848	1867
50	210	77	251	1865	1825	1865	1946	1965	50	1766	1726	1766	1847	1866
51	42	108	263	1866	1826	1866	1947	1966	51	1765	1725	1765	1846	1865
52	233	138	275	1867	1827	1867	1948	1967	52	1764	1724	1764	1845	1864
53	64	168	288	1868	1828	1868	1949	1968	53	1763	1723	1763	1844	1863
54	256	199	300	1869	1829	1869	1950	1969	54	1762	1722	1762	1843	1862
55	87	229	312	1870	1830	1870	1951	1970	55	1761	1721	1761	1842	1861
56	279	259	324	1871	1831	1871	1952	1971	56	1760	1720	1760	1841	1860
57	110	290	336	1872	1832	1872	1953	1972	57	1759	1719	1759	1840	1859
58	301	320	349	1873	1833	1873	1954	1973	58	1758	1718	1758	1839	1858
59	133	351	1	1874	1834	1874	1955	1974	59	1757	1717	1757	1838	1857
60	324	21	13	1875	1835	1875	1956	1975	60	1756	1716	1756	1837	1856
61	156	51	25	1876	1836	1876	1957	1976	61	1755	1715	1755	1836	1855
62	347	82	38	1877	1837	1877	1958	1977	62	1754	1714	1754	1835	1854
63	179	112	50	1878	1838	1878	1959	1978	63	1753	1713	1753	1834	1853
64	10	142	62	1879	1839	1879	1960	1979	64	1752	1712	1752	1833	1852
65	201	173	74	1880	1840	1880	1961	1980	65	1751	1711	1751	1832	1851
66	33	203	86	1881	1841	1881	1962	1981	66	1750	1710	1750	1831	1850
67	224	233	99	1882	1842	1882	1963	1982	67	1749	1709	1749	1830	1849
68	56	264	111	1883	1843	1883	1964	1983	68	1748	1708	1748	1829	1848
69	247	294	123	1884	1844	1884	1965	1984	69	1747	1707	1747	1828	1847
70	78	324	135	1885	1845	1885	1966	1985	70	1746	1706	1746	1827	1846
71	270	355	148	1886	1846	1886	1967	1986	71	1745	1705	1745	1826	1845
72	101	25	160	1887	1847	1887	1968	1987	72	1744	1704	1744	1825	1844
73	293	55	172	1888	1848	1888	1969	1988	73	1743	1703	1743	1824	1843
74	124	86	184	1889	1849	1889	1970	1989	74	1742	1702	1742	1823	1842
75	315	116	196	1890	1850	1890	1971	1990	75	1741	1701	1741	1822	1841
76	147	146	209	1891	1851	1891	1972	1991	76	1740	1700	1740	1821	1840
77	338	177	221	1892	1852	1892	1973	1992	77	1739	1699	1739	1820	1839
78	170	207	233	1893	1853	1893	1974	1993	78	1738	1698	1738	1819	1838
79	1	237	245	1894	1854	1894	1975	1994	79	1737	1697	1737	1818	1837
80	192	268	258	1895	1855	1895	1976	1995	80	1736	1696	1736	1817	1836

TABLE V-A.—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year **A.D.** if reckoned from **1 B.C.**	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	**B.C.**	Mars.	Merc.	Jup.	Venus.	Sat.
		Degrees.		A.D.	A.D.	A.D.	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
81	24	298	270	1896	1856	1896	1977	1996	**81**	1735	1695	1735	1816	1835
82	215	326	282	1897	1857	1897	1978	1997	**82**	1734	1694	1734	1815	1834
83	47	359	294	1898	1858	1898	1979	1998	**83**	1733	1693	1733	1814	1833
84	238	29	306	1899	1859	1899	1980	1999	**84**	1732	1692	1732	1813	1832
85	69	60	319	1900	1860	1900	1981	1617	**85**	1731	1691	1731	1812	1831
86	261	90	331	1901	1861	1901	1982	1618	**86**	1730	1690	1730	1811	1830
87	92	120	343	1902	1862	1902	1983	1619	**87**	1729	1689	1729	1810	1829
88	284	151	355	1903	1863	1903	1984	1620	**88**	1728	1688	1728	1809	1828
89	115	181	8	1904	1864	1904	1985	1621	**89**	1727	1687	1727	1808	1827
90	306	211	20	1905	1865	1905	1986	1622	**90**	1726	1686	1726	1807	1826
91	138	242	32	1906	1866	1906	1987	1623	**91**	1725	1685	1725	1806	1825
92	329	272	44	1907	1867	1907	1988	1624	**92**	1724	1684	1724	1805	1824
93	161	302	56	1908	1868	1908	1989	1625	**93**	1723	1683	1723	1804	1823
94	352	333	69	1909	1869	1909	1990	1626	**94**	1722	1682	1722	1803	1822
95	184	3	81	1910	1870	1910	1991	1627	**95**	1721	1681	1721	1802	1821
96	15	33	93	1911	1871	1911	1992	1628	**96**	1720	1680	1720	1801	1820
97	206	64	105	1912	1872	1912	1993	1629	**97**	1719	1679	1719	1800	1819
98	38	94	117	1913	1873	1913	1994	1630	**98**	1718	1678	1718	1799	1818
99	229	124	130	1914	1874	1914	1995	1631	**99**	1717	1677	1717	1798	1817
100	61	155	142	1915	1875	1915	1996	1632	**100**	1716	1676	1716	1797	1816
101	252	185	154	1916	1876	1916	1997	1633	**101**	1715	1675	1715	1796	1815
102	83	215	166	1917	1877	1917	1998	1634	**102**	1714	1674	1714	1795	1814
103	275	246	179	1918	1878	1918	1999	1635	**103**	1713	1673	1713	1794	1813
104	106	276	191	1919	1879	1919	1765	1636	**104**	1712	1672	1712	1793	1812
105	297	306	203	1920	1880	1920	1766	1637	**105**	1711	1671	1711	1792	1811
106	129	337	215	1921	1881	1921	1767	1638	**106**	1710	1670	1710	1791	1810
107	320	7	227	1922	1882	1922	1768	1639	**107**	1709	1669	1709	1790	1809
108	152	37	240	1923	1883	1923	1769	1640	**108**	1708	1668	1708	1789	1808
109	343	68	252	1924	1884	1924	1770	1641	**109**	1707	1667	1707	1788	1807
110	175	98	264	1925	1885	1925	1771	1642	**110**	1706	1666	1706	1787	1806
111	6	129	276	1926	1886	1926	1772	1643	**111**	1705	1665	1705	1786	1805
112	197	159	289	1927	1887	1927	1773	1644	**112**	1704	1664	1704	1785	1804
113	29	189	301	1928	1888	1928	1774	1645	**113**	1703	1663	1703	1784	1803
114	220	220	313	1929	1889	1929	1775	1646	**114**	1702	1662	1702	1783	1802
115	52	250	325	1930	1890	1930	1776	1647	**115**	1701	1661	1701	1782	1801
116	243	280	337	1931	1891	1931	1777	1648	**116**	1700	1660	1700	1781	1800
117	74	311	350	1932	1892	1932	1778	1649	**117**	1699	1659	1699	1780	1799
118	266	341	2	1933	1893	1933	1779	1650	**118**	1698	1658	1698	1779	1798
119	97	11	14	1934	1894	1934	1780	1651	**119**	1697	1657	1697	1778	1797
120	289	42	26	1935	1895	1935	1781	1652	**120**	1696	1656	1696	1777	1796
121	120	72	39	1936	1896	1936	1782	1653	**121**	1695	1655	1695	1776	1795
122	311	102	51	1937	1897	1937	1783	1654	**122**	1694	1654	1694	1775	1794
123	143	133	63	1938	1898	1938	1784	1655	**123**	1693	1653	1693	1774	1793
124	334	163	75	1939	1899	1939	1785	1656	**124**	1692	1652	1692	1773	1792
125	166	193	87	1940	1900	1940	1786	1657	**125**	1691	1651	1691	1772	1791
126	357	224	100	1941	1901	1941	1787	1658	**126**	1690	1650	1690	1771	1790
127	188	154	112	1942	1902	1942	1788	1659	**127**	1689	1649	1689	1770	1789
128	20	284	124	1943	1903	1943	1789	1660	**128**	1688	1648	1688	1769	1788
129	211	315	136	1944	1904	1944	1790	1661	**129**	1687	1647	1687	1768	1787
130	43	345	148	1945	1905	1945	1791	1662	**130**	1686	1646	1686	1767	1786
131	234	15	161	1946	1906	1946	1792	1663	**131**	1685	1645	1685	1766	1785
132	65	46	173	1947	1907	1947	1793	1664	**132**	1684	1999	1684	1765	1784
133	257	76	185	1948	1908	1948	1794	1665	**133**	1683	1998	1683	1999	1783
134	88	106	197	1949	1909	1949	1795	1666	**134**	1682	1997	1682	1998	1782
135	280	137	210	1950	1910	1950	1796	1667	**135**	1681	1996	1681	1997	1781
136	111	167	222	1951	1911	1951	1797	1668	**136**	1680	1995	1680	1996	1780
137	302	198	234	1952	1912	1952	1798	1669	**137**	1679	1994	1679	1995	1779
138	134	228	246	1953	1913	1953	1799	1670	**138**	1678	1993	1678	1994	1778
139	325	258	258	1954	1914	1954	1800	1671	**139**	1677	1992	1677	1993	1777
140	167	284	271	1955	1915	1955	1801	1672	**140**	1676	1991	1676	1992	1776
141	348	319	283	1956	1916	1956	1802	1673	**141**	1675	1990	1675	1991	1775
142	179	349	295	1957	1917	1957	1803	1674	**142**	1674	1989	1674	1990	1774
143	11	20	307	1958	1918	1958	1804	1675	**143**	1673	1988	1673	1989	1773
144	202	50	320	1959	1919	1959	1805	1676	**144**	1672	1987	1672	1988	1772
145	34	80	332	1960	1920	1960	1806	1677	**145**	1671	1986	1671	1987	1771
146	225	111	344	1961	1921	1961	1807	1678	**146**	1670	1985	1670	1986	1770
147	57	141	356	1962	1922	1962	1808	1679	**147**	1669	1984	1669	1985	1769
148	248	171	8	1963	1923	1963	1809	1680	**148**	1668	1983	1668	1984	1768
149	79	202	21	1964	1924	1964	1810	1681	**149**	1667	1982	1750	1983	1767
150	271	232	33	1965	1925	1965	1811	1682	**150**	1666	1981	1749	1982	1766
151	102	262	45	1966	1926	1966	1812	1683	**151**	1665	1980	1748	1981	1765
152	294	293	57	1967	1927	1967	1813	1684	**152**	1664	1979	1747	1980	1764
153	125	323	70	1968	1928	1968	1814	1685	**153**	1663	1978	1746	1979	1763
154	316	353	82	1969	1929	1969	1815	1686	**154**	1662	1977	1745	1978	1762
155	148	24	94	1970	1930	1970	1816	1687	**155**	1661	1976	1744	1977	1761
156	339	54	106	1971	1931	1971	1817	1688	**156**	1660	1975	1743	1976	1760
157	171	84	118	1972	1932	1972	1818	1689	**157**	1659	1974	1742	1975	1759
158	2	115	131	1973	1933	1973	1819	1690	**158**	1658	1973	1741	1974	1758
159	193	145	143	1974	1934	1974	1820	1691	**159**	1657	1972	1740	1973	1757
160	25	176	155	1975	1935	1975	1821	1692	**160**	1656	1971	1739	1972	1756

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	B.C.	Mars.	Merc.	Jup.	Venus.	Sat.
		Degrees.		A.D.	A.D.	A.D.	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
161	216	206	167	1976	1936	1976	1822	1693	**161**	1655	1970	1999	1971	1755
162	48	236	179	1977	1937	1977	1823	1694	**162**	1654	1969	1998	1970	1754
163	239	267	192	1978	1938	1978	1824	1695	**163**	1653	1968	1997	1969	1753
164	70	297	204	1979	1939	1979	1825	1696	**164**	1652	1967	1996	1968	1752
165	261	327	216	1980	1940	1980	1826	1697	**165**	1651	1966	1995	1967	1751
166	93	358	228	1981	1941	1981	1827	1698	**166**	1650	1965	1994	1966	1750
167	285	28	241	1982	1942	1982	1828	1699	**167**	1649	1964	1993	1965	1749
168	116	58	253	1983	1943	1983	1829	1700	**168**	1648	1963	1992	1964	1748
169	307	89	265	1984	1944	1984	1830	1701	**169**	1647	1962	1991	1963	1747
170	139	119	277	1985	1945	1985	1831	1702	**170**	1646	1961	1990	1962	1746
171	330	149	290	1986	1946	1986	1832	1703	**171**	1645	1960	1989	1961	1745
172	182	180	302	1987	1947	1987	1833	1704	**172**	1644	1959	1988	1960	1744
173	353	210	314	1988	1948	1988	1834	1705	**173**	1643	1958	1987	1959	1743
174	184	240	326	1989	1949	1989	1835	1706	**174**	1642	1957	1986	1958	1742
175	16	271	338	1990	1950	1990	1836	1707	**175**	1641	1956	1985	1957	1741
176	207	301	351	1991	1951	1991	1837	1708	**176**	1640	1955	1984	1956	1740
177	39	331	3	1992	1952	1992	1838	1709	**177**	1639	1954	1983	1955	1739
178	230	2	15	1993	1953	1993	1839	1710	**178**	1638	1953	1982	1954	1738
179	61	32	27	1994	1954	1994	1840	1711	**179**	1637	1952	1981	1953	1737
180	253	62	40	1995	1955	1995	1841	1712	**180**	1920	1951	1980	1952	1736
181	84	93	52	1996	1956	1996	1842	1713	**181**	1919	1950	1979	1951	1735
182	276	123	64	1997	1957	1997	1843	1714	**182**	1918	1949	1978	1950	1734
183	107	154	76	1998	1958	1998	1844	1715	**183**	1917	1948	1977	1949	1733
184	298	184	88	1999	1959	1999	1845	1716	**184**	1916	1947	1976	1948	1732
185	130	214	101	1637	1960	1739	1846	1717	**185**	1915	1946	1975	1947	1731
186	321	245	113	1638	1961	1740	1847	1718	**186**	1914	1945	1974	1946	1730
187	153	275	125	1639	1962	1741	1848	1719	**187**	1913	1944	1973	1945	1729
188	344	305	137	1640	1963	1742	1849	1720	**188**	1912	1943	1972	1944	1728
189	176	333	149	1641	1964	1743	1850	1721	**189**	1911	1942	1971	1943	1727
190	7	6	162	1642	1965	1744	1851	1722	**190**	1910	1941	1970	1942	1726
191	198	36	174	1643	1966	1745	1852	1723	**191**	1909	1940	1969	1941	1725
192	30	67	186	1644	1967	1746	1853	1724	**192**	1908	1939	1968	1940	1724
193	221	97	198	1645	1968	1747	1854	1725	**193**	1907	1938	1967	1939	1723
194	53	127	211	1646	1969	1748	1855	1726	**194**	1906	1937	1966	1938	1722
195	244	158	223	1647	1970	1749	1856	1727	**195**	1905	1936	1965	1937	1721
196	75	188	235	1648	1971	1750	1857	1728	**196**	1904	1935	1964	1936	1720
197	267	218	247	1649	1972	1751	1858	1729	**197**	1903	1934	1963	1935	1719
198	98	249	259	1650	1973	1752	1859	1730	**198**	1902	1933	1962	1934	1718
199	290	279	272	1651	1974	1753	1860	1731	**199**	1901	1932	1961	1933	1717
200	121	309	284	1652	1975	1754	1861	1732	**200**	1900	1931	1960	1932	1716
201	312	340	296	1653	1976	1755	1862	1733	**201**	1899	1930	1959	1931	1715
202	144	10	308	1654	1977	1756	1863	1734	**202**	1898	1929	1958	1930	1714
203	335	40	321	1655	1978	1757	1864	1735	**203**	1897	1928	1957	1929	1713
204	167	71	333	1656	1979	1758	1865	1736	**204**	1896	1927	1956	1928	1712
205	358	101	345	1657	1980	1759	1866	1737	**205**	1895	1926	1955	1927	1711
206	189	132	357	1658	1981	1760	1867	1738	**206**	1894	1925	1954	1926	1710
207	21	162	9	1659	1982	1761	1868	1739	**207**	1893	1924	1953	1925	1709
208	212	192	22	1660	1983	1762	1869	1740	**208**	1892	1923	1952	1924	1708
209	44	223	34	1661	1984	1763	1870	1741	**209**	1891	1922	1951	1923	1707
210	235	253	46	1662	1985	1764	1871	1742	**210**	1890	1921	1950	1922	1706
211	66	283	58	1663	1986	1765	1872	1743	**211**	1889	1920	1949	1921	1705
212	258	314	71	1664	1987	1766	1873	1744	**212**	1888	1919	1948	1920	1704
213	89	344	83	1665	1988	1767	1874	1745	**213**	1887	1918	1947	1919	1703
214	281	14	95	1666	1989	1768	1875	1746	**214**	1886	1917	1946	1918	1702
215	112	45	107	1667	1990	1769	1876	1747	**215**	1885	1916	1945	1917	1701
216	303	75	119	1668	1991	1770	1877	1748	**216**	1884	1915	1944	1916	1700
217	135	105	132	1669	1992	1771	1878	1749	**217**	1883	1914	1943	1915	1699
218	326	136	144	1670	1993	1772	1879	1750	**218**	1882	1913	1942	1914	1698
219	158	166	156	1671	1994	1773	1880	1751	**219**	1881	1912	1941	1913	1697
220	349	196	168	1672	1995	1774	1881	1752	**220**	1880	1911	1940	1912	1696
221	180	227	181	1673	1996	1775	1882	1753	**221**	1879	1910	1939	1911	1695
222	12	257	193	1674	1997	1776	1883	1754	**222**	1878	1909	1938	1910	1694
223	203	287	205	1675	1998	1777	1884	1755	**223**	1877	1908	1937	1909	1693
224	35	318	217	1676	1999	1778	1885	1756	**224**	1876	1907	1936	1908	1692
225	226	348	229	1677	1645	1779	1886	1757	**225**	1875	1906	1935	1907	1691
226	58	18	242	1678	1646	1780	1887	1758	**226**	1874	1905	1934	1906	1690
227	249	49	254	1679	1647	1781	1888	1759	**227**	1873	1904	1933	1905	1689
228	80	79	266	1680	1648	1782	1889	1760	**228**	1872	1903	1932	1904	1688
229	272	109	278	1681	1649	1783	1890	1761	**229**	1871	1902	1931	1903	1687
230	103	140	291	1682	1650	1784	1891	1762	**230**	1870	1901	1930	1902	1686
231	295	170	303	1683	1651	1785	1892	1763	**231**	1869	1900	1929	1901	**1685**
232	126	201	315	1684	1652	1786	1893	1764	**232**	1868	1899	1928	1900	**1684**
233	317	231	327	1685	1653	1787	1894	1765	**233**	1867	1898	1927	1899	**1683**
234	149	261	339	1686	1654	1788	1895	1766	**234**	1866	1897	1926	1898	**1682**
235	340	292	352	1687	1655	1789	1896	1767	**235**	1865	1896	1925	1897	**1681**
236	172	322	4	1688	1656	1790	1897	1768	**236**	1864	1895	1924	1896	**1680**
237	3	352	16	1689	1657	1791	1898	1769	**237**	1863	1894	1923	1895	**1679**
238	194	23	28	1690	1658	1792	1899	1770	**238**	1862	1893	1922	1894	**1678**
239	26	53	41	1691	1659	1793	1900	1771	**239**	1861	1892	1921	1893	**1677**
240	217	83	53	1692	1660	1794	1901	1772	**240**	1860	1891	1920	1892	**1676**

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year **A.D.** if reckoned from **1 B.C.**	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	**B.C.**	Mars.	Merc.	Jup.	Venus.	Sat.
		Degrees.		A.D.	A.D.	A.D.	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
241	49	114	65	1693	1661	1795	1902	1773	**241**	1859	1890	1919	1891	1675
242	240	144	77	1694	1662	1796	1903	1774	**242**	1858	1889	1918	1890	1674
243	71	174	89	1695	1663	1797	1904	1775	**243**	1857	1888	1917	1889	1673
244	262	205	102	1696	1664	1798	1905	1776	**244**	1856	1887	1916	1888	1672
245	94	235	114	1697	1665	1799	1906	1777	**245**	1855	1886	1915	1887	1671
246	286	265	126	1698	1666	1800	1907	1778	**246**	1854	1885	1914	1886	1670
247	117	296	138	1699	1667	1801	1908	1779	**247**	1853	1884	1913	1885	1669
248	308	326	150	1700	1668	1802	1909	1780	**248**	1852	1883	1912	1884	1668
249	140	356	163	1701	1669	1803	1910	1781	**249**	1851	1882	1911	1883	1667
250	331	27	175	1702	1670	1804	1911	1782	**250**	1850	1881	1910	1882	1666
251	163	57	187	1703	1671	1805	1912	1783	**251**	1849	1880	1909	1881	1665
252	354	87	199	1704	1672	1806	1913	1784	**252**	1848	1879	1908	1880	1664
253	185	118	212	1705	1673	1807	1914	1785	**253**	1847	1878	1907	1879	1663
254	17	148	224	1706	1674	1808	1915	1786	**254**	1846	1877	1906	1878	1662
255	208	179	236	1707	1675	1809	1916	1787	**255**	1845	1876	1905	1877	1661
256	40	209	248	1708	1676	1810	1917	1788	**256**	1844	1875	1904	1876	1660
257	231	239	260	1709	1677	1811	1918	1789	**257**	1843	1874	1903	1875	1659
258	62	270	273	1710	1678	1812	1919	1790	**258**	1842	1873	1902	1874	1658
259	254	300	285	1711	1679	1813	1920	1791	**259**	1841	1872	1901	1873	1657
260	85	330	297	1712	1680	1814	1921	1792	**260**	1840	1871	1900	1872	1656
261	277	1	309	1713	1681	1815	1922	1793	**261**	1839	1870	1899	1871	1655
262	108	31	322	1714	1682	1816	1923	1794	**262**	1838	1869	1898	1870	1654
263	299	62	334	1715	1683	1817	1924	1795	**263**	1837	1868	1897	1869	1653
264	131	92	346	1716	1684	1818	1925	1796	**264**	1836	1867	1896	1868	1652
265	322	122	358	1717	1685	1819	1926	1797	**265**	1835	1866	1895	1867	1651
266	154	153	10	1718	1686	1820	1927	1798	**266**	1834	1865	1894	1866	1650
267	345	183	23	1719	1687	1821	1928	1799	**267**	1833	1864	1893	1865	1649
268	177	213	35	1720	1688	1822	1929	1800	**268**	1832	1863	1892	1864	1648
269	8	244	47	1721	1689	1823	1930	1801	**269**	1831	1862	1891	1863	1647
270	199	274	59	1722	1690	1824	1931	1802	**270**	1830	1861	1890	1862	1646
271	31	304	72	1723	1691	1825	1932	1803	**271**	1829	1860	1889	1861	1645
272	222	335	84	1724	1692	1826	1933	1804	**272**	1828	1859	1888	1860	1644
273	54	5	96	1725	1693	1827	1934	1805	**273**	1827	1858	1887	1859	1643
274	245	35	108	1726	1694	1828	1935	1806	**274**	1826	1857	1886	1858	1642
275	76	66	120	1727	1695	1829	1936	1807	**275**	1825	1856	1885	1857	1641
276	268	96	133	1728	1696	1830	1937	1808	**276**	1824	1855	1884	1856	1640
277	99	127	145	1729	1697	1831	1938	1809	**277**	1823	1854	1883	1855	1639
278	291	157	157	1730	1698	1832	1939	1810	**278**	1822	1853	1882	1854	1638
279	122	187	169	1731	1699	1833	1940	1811	**279**	1821	1852	1881	1853	1637
280	313	218	182	1732	1700	1834	1941	1812	**280**	1820	1851	1880	1852	1636
281	145	248	194	1733	1701	1835	1942	1813	**281**	1819	1850	1879	1851	1635
282	336	278	206	1734	1702	1836	1943	1814	**282**	1818	1849	1878	1850	1634
283	168	309	218	1735	1703	1837	1944	1815	**283**	1817	1848	1877	1849	1633
284	359	339	230	1736	1704	1838	1945	1816	**284**	1816	1847	1876	1848	1632
285	190	9	243	1737	1705	1839	1946	1817	**285**	1815	1846	1875	1847	1631
286	22	40	255	1738	1706	1840	1947	1818	**286**	1814	1845	1874	1846	1630
287	213	70	267	1739	1707	1841	1948	1819	**287**	1813	1844	1873	1845	1629
288	45	100	279	1740	1708	1842	1949	1820	**288**	1812	1843	1872	1844	1628
289	236	131	292	1741	1709	1843	1950	1821	**289**	1811	1842	1871	1843	1627
290	67	161	304	1742	1710	1844	1951	1822	**290**	1810	1841	1870	1842	1626
291	259	191	316	1743	1711	1845	1952	1823	**291**	1809	1840	1869	1841	1625
292	90	222	328	1744	1712	1846	1953	1824	**292**	1808	1839	1868	1840	1624
293	282	252	340	1745	1713	1847	1954	1825	**293**	1807	1838	1867	1839	1623
294	113	282	353	1746	1714	1848	1955	1826	**294**	1806	1837	1866	1838	1622
295	304	313	5	1747	1715	1849	1956	1827	**295**	1805	1836	1865	1837	1621
296	136	343	17	1748	1716	1850	1957	1828	**296**	1804	1835	1864	1836	1620
297	327	13	29	1749	1717	1851	1958	1829	**297**	1803	1834	1863	1835	1619
298	159	44	42	1750	1718	1852	1959	1830	**298**	1802	1833	1862	1834	1618
299	350	74	54	1751	1719	1853	1960	1831	**299**	1801	1832	1861	1833	1617
300	181	104	66	1752	1720	1854	1961	1832	**300**	1800	1831	1860	1832	1999
301	13	135	78	1753	1721	1855	1962	1833	**301**	1799	1830	1859	1831	1998
302	204	165	90	1754	1722	1856	1963	1834	**302**	1798	1829	1858	1830	1997
303	36	196	103	1755	1723	1857	1964	1835	**303**	1797	1828	1857	1829	1996
304	227	226	115	1756	1724	1858	1965	1836	**304**	1796	1827	1856	1828	1995
305	59	256	127	1757	1725	1859	1966	1837	**305**	1795	1826	1855	1827	1994
306	250	287	139	1758	1726	1860	1967	1838	**306**	1794	1825	1854	1826	1993
307	81	317	151	1759	1727	1861	1968	1839	**307**	1793	1824	1853	1825	1992
308	273	347	164	1760	1728	1862	1969	1840	**308**	1792	1823	1852	1824	1991
309	104	18	176	1761	1729	1863	1970	1841	**309**	1791	1822	1851	1823	1990
310	296	48	188	1762	1730	1864	1971	1842	**310**	1790	1821	1850	1822	1989
311	127	78	200	1763	1731	1865	1972	1843	**311**	1789	1820	1849	1821	1988
312	318	109	213	1764	1732	1866	1973	1844	**312**	1788	1819	1848	1820	1987
313	150	139	225	1765	1733	1867	1974	1845	**313**	1787	1818	1847	1819	1986
314	341	169	237	1766	1734	1868	1975	1846	**314**	1786	1817	1846	1818	1985
315	173	200	249	1767	1735	1869	1976	1847	**315**	1785	1816	1845	1817	1984
316	4	230	261	1768	1736	1870	1977	1848	**316**	1784	1815	1844	1816	1983
317	195	260	274	1769	1737	1871	1978	1849	**317**	1783	1814	1843	1815	1982
318	27	291	286	1770	1738	1872	1979	1850	**318**	1782	1813	1842	1814	1981
319	218	321	298	1771	1739	1873	1980	1851	**319**	1781	1812	1841	1813	1980
320	50	351	310	1772	1740	1874	1981	1852	**320**	1780	1811	1840	1812	1979

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	B.C.	Mars.	Merc.	Jup.	Venus.	Sat.
		Degrees.		A.D.	A.D.	A.D.	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
321	241	22	323	1773	1741	1875	1982	1853	**321**	1779	1810	1839	1811	1978
322	72	52	335	1774	1742	1876	1983	1854	**322**	1778	1809	1838	1810	1977
323	263	82	347	1775	1743	1877	1984	1855	**323**	1777	1808	1837	1809	1976
324	95	113	359	1776	1744	1878	1985	1856	**324**	1776	1807	1836	1808	1975
325	287	143	11	1777	1745	1879	1986	1857	**325**	1775	1806	1835	1807	1974
326	118	174	24	1778	1746	1880	1987	1858	**326**	1774	1805	1834	1806	1973
327	309	204	36	1779	1747	1881	1988	1859	**327**	1773	1804	1833	1805	1972
328	141	234	48	1780	1748	1882	1989	1860	**328**	1772	1803	1832	1804	1971
329	332	265	60	1781	1749	1883	1990	1861	**329**	1771	1802	1831	1803	1970
330	164	295	73	1782	1750	1884	1991	1862	**330**	1770	1801	1830	1802	1969
331	355	325	85	1783	1751	1885	1992	1863	**331**	1769	1800	1829	1801	1968
332	186	356	97	1784	1752	1886	1993	1864	**332**	1768	1799	1828	1800	1967
333	18	26	109	1785	1753	1887	1994	1865	**333**	1767	1798	1827	1799	1966
334	209	56	121	1786	1754	1888	1995	1866	**334**	1766	1797	1826	1798	1965
335	41	87	134	1787	1755	1889	1996	1867	**335**	1765	1796	1825	1797	1964
336	232	117	146	1788	1756	1890	1997	1868	**336**	1764	1795	1824	1796	1963
337	63	147	158	1789	1757	1891	1998	1869	**337**	1763	1794	1823	1795	1962
338	255	178	170	1790	1758	1892	1999	1870	**338**	1762	1793	1822	1794	1961
339	86	208	183	1791	1759	1893	1765	1871	**339**	1761	1792	1821	1793	1960
340	278	238	195	1792	1760	1894	1766	1872	**340**	1760	1791	1820	1792	1959
341	109	269	207	1793	1761	1895	1767	1873	**341**	1759	1790	1819	1791	1958
342	300	299	219	1794	1762	1896	1768	1874	**342**	1758	1789	1818	1790	1957
343	132	329	231	1795	1763	1897	1769	1875	**343**	1757	1788	1817	1789	1956
344	323	0	244	1796	1764	1898	1770	1876	**344**	1756	1787	1816	1788	1955
345	155	30	256	1797	1765	1899	1771	1877	**345**	1755	1786	1815	1787	1954
346	346	61	268	1798	1766	1900	1772	1878	**346**	1754	1785	1814	1786	1953
347	178	91	280	1799	1767	1901	1773	1879	**347**	1753	1784	1813	1785	1952
348	9	121	293	1800	1768	1902	1774	1880	**348**	1752	1783	1812	1784	1951
349	200	152	305	1801	1769	1903	1775	1881	**349**	1751	1782	1811	1783	1950
350	32	182	317	1802	1770	1904	1776	1882	**350**	1750	1781	1810	1782	1949
351	223	212	329	1803	1771	1905	1777	1883	**351**	1749	1780	1809	1781	1948
352	55	243	341	1804	1772	1906	1778	1884	**352**	1748	1779	1808	1780	1947
353	246	273	354	1805	1773	1907	1779	1885	**353**	1747	1778	1807	1779	1946
354	77	303	6	1806	1774	1908	1780	1886	**354**	1746	1777	1806	1778	1945
355	269	334	18	1807	1775	1909	1781	1887	**355**	1745	1776	1805	1777	1944
356	100	4	30	1808	1776	1910	1782	1888	**356**	1744	1775	1804	1776	1943
357	292	34	43	1809	1777	1911	1783	1889	**357**	1743	1774	1803	1775	1942
358	123	65	55	1810	1778	1912	1784	1890	**358**	1742	1773	1802	1774	1941
359	314	95	67	1811	1779	1913	1785	1891	**359**	1741	1772	1801	1773	1999
360	146	126	79	1812	1780	1914	1786	1892	**360**	1740	1771	1800	1772	1998
361	337	156	91	1813	1781	1915	1787	1893	**361**	1739	1770	1799	1771	1997
362	169	186	104	1814	1782	1916	1788	1894	**362**	1738	1769	1798	1770	1996
363	0	217	116	1815	1783	1917	1789	1895	**363**	1737	1768	1797	1769	1995
364	191	247	128	1816	1784	1918	1790	1896	**364**	1736	1767	1796	1768	1994
365	23	277	140	1817	1785	1919	1791	1897	**365**	1735	1766	1795	1767	1993
366	214	308	152	1818	1786	1920	1792	1898	**366**	1734	1765	1794	1766	1992
367	46	338	165	1819	1787	1921	1793	1899	**367**	1733	1764	1793	1765	1991
368	237	8	177	1820	1788	1922	1794	1900	**368**	1732	1763	1792	1999	1990
369	68	39	189	1821	1789	1923	1795	1901	**369**	1731	1762	1791	1998	1989
370	260	69	201	1822	1790	1924	1796	1902	**370**	1730	1761	1790	1997	1988
371	91	99	214	1823	1791	1925	1797	1903	**371**	1729	1760	1789	1996	1987
372	283	130	226	1824	1792	1926	1798	1904	**372**	1728	1759	1788	1995	1986
373	114	160	238	1825	1793	1927	1799	1905	**373**	1727	1758	1787	1994	1985
374	305	190	250	1826	1794	1928	1800	1906	**374**	1726	1757	1786	1993	1984
375	137	221	262	1827	1795	1929	1801	1907	**375**	1725	1756	1785	1992	1983
376	328	251	275	1828	1796	1930	1802	1908	**376**	1724	1755	1784	1999	1982
377	160	281	287	1829	1797	1931	1803	1909	**377**	1723	1754	1783	1998	1981
378	351	312	299	1830	1798	1932	1804	1910	**378**	1722	1753	1782	1997	1980
379	183	342	311	1831	1799	1933	1805	1911	**379**	1721	1752	1781	1996	1979
380	14	12	324	1832	1800	1934	1806	1912	**380**	1720	1751	1780	1995	1978
381	205	43	336	1833	1801	1935	1807	1913	**381**	1719	1750	1779	1994	1977
382	37	73	348	1834	1802	1936	1808	1914	**382**	1718	1749	1778	1993	1976
383	228	103	0	1835	1803	1937	1809	1915	**383**	1717	1748	1777	1992	1975
384	59	134	12	1836	1804	1938	1810	1916	**384**	1716	1747	1776	1991	1974
385	251	164	24	1837	1805	1939	1811	1917	**385**	1715	1746	1775	1990	1973
386	82	195	37	1838	1806	1940	1812	1918	**386**	1714	1745	1774	1989	1972
387	274	225	49	1839	1807	1941	1813	1919	**387**	1713	1744	1773	1988	1971
388	105	255	61	1840	1808	1942	1814	1920	**388**	1712	1743	1772	1987	1970
389	296	286	73	1841	1809	1943	1815	1921	**389**	1711	1742	1771	1986	1969
390	128	316	85	1842	1810	1944	1816	1922	**390**	1710	1741	1770	1985	1968
391	319	348	98	1843	1811	1945	1817	1923	**391**	1709	1740	1769	1984	1967
392	151	17	110	1844	1812	1946	1818	1924	**392**	1708	1739	1768	1983	1966
393	342	47	122	1845	1813	1947	1819	1925	**393**	1707	1738	1767	1982	1965
394	174	77	134	1846	1814	1948	1820	1926	**394**	1706	1737	1766	1981	1964
395	5	108	147	1847	1815	1949	1821	1927	**395**	1705	1736	1765	1980	1963
396	196	138	159	1848	1816	1950	1822	1928	**396**	1704	1735	1764	1979	1962
397	28	168	171	1849	1817	1951	1823	1929	**397**	1703	1734	1763	1978	1961
398	219	198	183	1850	1818	1952	1824	1930	**398**	1702	1733	1762	1977	1960
399	51	229	195	1851	1819	1953	1825	1931	**399**	1701	1732	1761	1976	1959
400	242	259	208	1852	1820	1954	1826	1932	**400**	1700	1731	1760	1975	1958

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year **A.D.** if reckoned from **1 B.C.**	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	**B.C.**	Mars.	Merc.	Jup.	Venus.	Sat.
		Degrees.		A.D.	A.D.	A.D	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
401	73	290	220	1853	1821	1955	1827	1933	**401**	1699	1730	1759	1974	1957
402	265	320	232	1854	1822	1956	1828	1934	**402**	1698	1729	1758	1973	1956
403	96	350	244	1855	1823	1957	1829	1935	**403**	1697	1728	1757	1972	1955
404	288	21	257	1856	1824	1958	1830	1936	**404**	1696	1727	1756	1971	1954
405	119	51	269	1857	1825	1959	1831	1937	**405**	1695	1726	1755	1970	1953
406	310	81	281	1858	1826	1960	1832	1938	**406**	1694	1725	1754	1969	1952
407	142	112	293	1859	1827	1961	1833	1939	**407**	1693	1724	1753	1968	1951
408	333	142	305	1860	1828	1962	1834	1940	**408**	1692	1723	1752	1967	1950
409	165	173	318	1861	1829	1963	1835	1941	**409**	1691	1722	1751	1966	1949
410	356	203	330	1862	1830	1964	1836	1942	**410**	1690	1721	1750	1965	1948
411	187	233	342	1863	1831	1965	1837	1943	**411**	1689	1720	1749	1964	1947
412	19	264	354	1864	1832	1966	1838	1944	**412**	1688	1719	1748	1963	1946
413	210	294	7	1865	1833	1967	1839	1945	**413**	1687	1718	1747	1962	1945
414	42	324	19	1866	1834	1968	1840	1946	**414**	1686	1717	1746	1961	1944
415	233	355	31	1867	1835	1969	1841	1947	**415**	1685	1716	1745	1960	1943
416	64	25	43	1868	1836	1970	1842	1948	**416**	1684	1715	1744	1959	1942
417	256	55	55	1869	1837	1971	1843	1949	**417**	1683	1714	1743	1958	1941
418	87	86	68	1870	1838	1972	1844	1950	**418**	1682	1713	1742	1957	1940
419	279	116	80	1871	1839	1973	1845	1951	**419**	1681	1712	1741	1956	1939
420	110	146	92	1872	1840	1974	1846	1952	**420**	1680	1711	1740	1955	1938
421	301	177	104	1873	1841	1975	1847	1953	**421**	1679	1710	1739	1954	1937
422	133	207	116	1874	1842	1976	1848	1954	**422**	1678	1709	1738	1953	1936
423	324	237	129	1875	1843	1977	1849	1955	**423**	1677	1708	1737	1952	1935
424	156	268	141	1876	1844	1978	1850	1956	**424**	1676	1707	1736	1951	1934
425	347	298	153	1877	1845	1979	1851	1957	**425**	1675	1706	1735	1950	1933
426	178	328	165	1878	1846	1980	1852	1958	**426**	1674	1705	1734	1949	1932
427	10	359	178	1879	1847	1981	1853	1959	**427**	1673	1704	1733	1948	1931
428	201	29	190	1880	1848	1982	1854	1960	**428**	1672	1703	1732	1947	1930
429	33	59	202	1881	1849	1983	1855	1961	**429**	1671	1702	1731	1946	1929
430	224	90	214	1882	1850	1984	1856	1962	**430**	1670	1701	1730	1945	1928
431	56	120	226	1883	1851	1985	1857	1963	**431**	1669	1700	1729	1944	1927
432	247	151	239	1884	1852	1986	1858	1964	**432**	1668	1699	1728	1943	1926
433	78	181	251	1885	1853	1987	1859	1965	**433**	1667	1698	1727	1942	1925
434	270	211	263	1886	1854	1988	1860	1966	**434**	1666	1697	1726	1941	1924
435	101	242	275	1887	1855	1989	1861	1967	**435**	1665	1696	1725	1940	1923
436	293	272	288	1888	1856	1990	1862	1968	**436**	1664	1695	1724	1939	1922
437	124	302	300	1889	1857	1991	1863	1969	**437**	1663	1694	1723	1938	1921
438	315	333	312	1890	1858	1992	1864	1970	**438**	1662	1693	1722	1937	1920
439	147	3	324	1891	1859	1993	1865	1971	**439**	1661	1692	1721	1936	1919
440	338	33	336	1892	1860	1994	1866	1972	**440**	1660	1691	1720	1935	1918
441	170	64	349	1893	1861	1995	1867	1973	**441**	1659	1690	1719	1934	1917
442	1	94	1	1894	1862	1996	1868	1974	**442**	1658	1689	1718	1933	1916
443	192	124	13	1895	1863	1997	1869	1975	**443**	1657	1688	1717	1932	1915
444	24	155	25	1896	1864	1998	1870	1976	**444**	1656	1687	1716	1931	1914
445	215	185	38	1897	1865	1999	1871	1977	**445**	1655	1686	1715	1930	1913
446	47	215	50	1898	1866	1656	1872	1978	**446**	1654	1685	1714	1929	1912
447	238	246	62	1899	1867	1657	1873	1979	**447**	1653	1684	1713	1928	1911
448	69	276	74	1900	1868	1658	1874	1980	**448**	1652	1683	1712	1927	1910
449	261	306	86	1901	1869	1659	1875	1981	**449**	1651	1682	1711	1926	1909
450	92	337	99	1902	1870	1660	1876	1982	**450**	1650	1681	1710	1925	1908
451	284	7	111	1903	1871	1661	1877	1983	**451**	1649	1680	1709	1924	1907
452	115	37	123	1904	1872	1662	1878	1984	**452**	1648	1679	1708	1923	1906
453	306	68	135	1905	1873	1663	1879	1985	**453**	1647	1678	1707	1922	1905
454	138	98	147	1906	1874	1664	1880	1986	**454**	1646	1677	1706	1921	1904
455	329	129	160	1907	1875	1665	1881	1987	**455**	1645	1676	1705	1920	1903
456	161	159	172	1908	1876	1666	1882	1988	**456**	1644	1675	1704	1919	1902
457	352	189	184	1909	1877	1667	1883	1989	**457**	1643	1674	1703	1918	1901
458	183	220	196	1910	1878	1668	1884	1990	**458**	1642	1673	1702	1917	1900
459	15	250	209	1911	1879	1669	1885	1991	**459**	1641	1672	1701	1916	1899
460	206	280	221	1912	1880	1670	1886	1992	**460**	1640	1671	1700	1915	1898
461	38	311	233	1913	1881	1671	1887	1993	**461**	1639	1670	1699	1914	1897
462	229	341	245	1914	1882	1672	1888	1994	**462**	1638	1669	1698	1913	1896
463	60	11	257	1915	1883	1673	1889	1995	**463**	1637	1668	1697	1912	1895
464	252	42	270	1916	1884	1674	1890	1996	**464**	1715	1667	1696	1911	1894
465	83	72	282	1917	1885	1675	1891	1997	**465**	1714	1666	1695	1910	1893
466	275	102	294	1918	1886	1676	1892	1998	**466**	1713	1665	1694	1909	1892
467	106	133	306	1919	1887	1677	1893	1999	**467**	1712	1664	1693	1908	1891
468	297	163	319	1920	1888	1678	1894	1617	**468**	1711	1663	1692	1907	1890
469	129	193	331	1921	1889	1679	1895	1618	**469**	1710	1662	1691	1906	1889
470	320	224	343	1922	1890	1680	1896	1619	**470**	1709	1661	1690	1905	1888
471	152	254	355	1923	1891	1681	1897	1620	**471**	1708	1660	1689	1904	1887
472	343	284	7	1924	1892	1682	1898	1621	**472**	1707	1659	1688	1903	1886
473	175	315	20	1925	1893	1683	1899	1622	**473**	1706	1658	1687	1902	1885
474	6	345	32	1926	1894	1684	1900	1623	**474**	1705	1657	1686	1901	1884
475	197	15	44	1927	1895	1685	1901	1624	**475**	1704	1656	1685	1900	1883
476	29	46	56	1928	1896	1686	1902	1625	**476**	1703	1655	1684	1899	1882
477	220	76	69	1929	1897	1687	1903	1626	**477**	1702	1654	1683	1898	1881
478	52	106	81	1930	1898	1688	1904	1627	**478**	1701	1653	1682	1897	1880
479	243	137	93	1931	1899	1689	1905	1628	**479**	1700	1652	1681	1896	1879
480	74	167	105	1932	1900	1690	1906	1629	**480**	1699	1651	1680	1895	1878

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	B.C.	Mars.	Merc.	Jup.	Venus	Sat.
		Degrees.		A.D.	A.D.	A.D.	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
481	266	198	117	1933	1901	1691	1907	1630	**481**	1698	1650	1679	1894	1877
482	97	228	130	1934	1902	1692	1908	1631	**482**	1697	1649	1678	1893	1876
483	289	258	142	1935	1903	1693	1909	1632	**483**	1696	1648	1677	1892	1875
484	120	289	154	1936	1904	1694	1910	1633	**484**	1695	1647	1676	1891	1874
485	311	319	166	1937	1905	1695	1911	1634	**485**	1694	1646	1675	1890	1873
486	143	349	179	1938	1906	1696	1912	1635	**486**	1693	1645	1674	1889	1872
487	334	20	191	1939	1907	1697	1913	1636	**487**	1692	1999	1673	1888	1871
488	166	50	203	1940	1908	1698	1914	1637	**488**	1691	1998	1672	1887	1870
489	357	80	215	1941	1909	1699	1915	1638	**489**	1690	1997	1671	1886	1869
490	188	111	227	1942	1910	1700	1916	1639	**490**	1689	1996	1670	1885	1868
491	20	141	240	1943	1911	1701	1917	1640	**491**	1688	1995	1669	1884	1867
492	211	171	252	1944	1912	1702	1918	1641	**492**	1687	1994	1668	1883	1866
493	43	202	264	1945	1913	1703	1919	1642	**493**	1686	1993	1667	1882	1865
494	234	232	276	1946	1914	1704	1920	1643	**494**	1685	1992	1666	1881	1864
495	65	262	289	1947	1915	1705	1921	1644	**495**	1684	1991	1665	1880	1863
496	257	293	301	1948	1916	1706	1922	1645	**496**	1967	1900	1664	1879	1862
497	88	323	313	1949	1917	1707	1923	1646	**497**	1966	1989	1663	1878	1861
498	280	353	325	1950	1918	1708	1924	1647	**498**	1965	1988	1662	1877	1860
499	111	24	337	1951	1919	1709	1925	1648	**499**	1964	1987	1661	1876	1859
500	302	54	350	1952	1920	1710	1926	1649	**500**	1963	1986	1660	1875	1858
501	134	84	2	1953	1921	1711	1927	1650	**501**	1962	1985	1659	1874	1857
502	325	115	14	1954	1922	1712	1928	1651	**502**	1961	1984	1658	1873	1856
503	157	145	26	1955	1923	1713	1929	1652	**503**	1960	1983	1657	1872	1855
504	348	176	39	1956	1924	1714	1930	1653	**504**	1959	1982	1656	1871	1854
505	179	206	51	1957	1925	1715	1931	1654	**505**	1958	1981	1999	1870	1853
506	11	236	63	1958	1926	1716	1932	1655	**506**	1957	1980	1998	1869	1852
507	202	267	75	1959	1927	1717	1933	1656	**507**	1956	1979	1997	1868	1851
508	34	297	87	1960	1928	1718	1934	1657	**508**	1955	1978	1996	1867	1850
509	225	327	100	1961	1929	1719	1935	1658	**509**	1954	1977	1995	1866	1849
510	57	358	112	1962	1930	1720	1936	1659	**510**	1953	1976	1994	1865	1848
511	248	28	124	1963	1931	1721	1937	1660	**511**	1952	1975	1993	1864	1847
512	79	58	136	1964	1932	1722	1938	1661	**512**	1951	1974	1992	1863	1846
513	271	89	148	1965	1933	1723	1939	1662	**513**	1950	1973	1991	1862	1845
514	102	119	161	1966	1934	1724	1940	1663	**514**	1949	1972	1990	1861	1844
515	294	149	173	1967	1935	1725	1941	1664	**515**	1948	1971	1989	1860	1843
516	125	180	185	1968	1936	1723	1942	1665	**516**	1947	1970	1988	1859	1842
517	316	210	197	1969	1937	1727	1943	1666	**517**	1946	1969	1987	1858	1841
518	148	240	210	1970	1938	1728	1944	1667	**518**	1945	1968	1986	1857	1840
519	339	271	222	1971	1939	1729	1945	1668	**519**	1944	1967	1985	1856	1839
520	171	301	234	1972	1940	1730	1946	1669	**520**	1943	1966	1984	1855	1838
521	2	331	246	1973	1941	1731	1947	1670	**521**	1942	1665	1983	1854	1837
522	193	2	258	1974	1942	1732	1948	1671	**522**	1941	1664	1982	1853	1836
523	25	32	271	1975	1943	1733	1949	1672	**523**	1940	1663	1981	1852	1835
524	216	62	283	1976	1944	1734	1950	1673	**524**	1939	1662	1980	1851	1834
525	48	93	295	1977	1945	1735	1951	1674	**525**	1938	1661	1979	1850	1833
526	239	123	307	1978	1946	1736	1952	1675	**526**	1937	1660	1978	1849	1832
527	70	154	320	1979	1947	1737	1953	1676	**527**	1936	1659	1977	1848	1831
528	260	184	332	1980	1948	1738	1954	1677	**528**	1935	1658	1976	1847	1830
529	93	214	344	1981	1949	1739	1955	1678	**529**	1934	1657	1975	1846	1829
530	285	245	356	1982	1950	1740	1956	1679	**530**	1933	1656	1974	1845	1828
531	116	275	8	1983	1951	1741	1957	1680	**531**	1932	1655	1973	1844	1827
532	307	305	21	1984	1952	1742	1958	1681	**532**	1931	1654	1972	1843	1826
533	139	336	33	1985	1953	1743	1959	1682	**533**	1930	1953	1971	1842	1825
534	330	6	45	1986	1954	1744	1960	1683	**534**	1929	1952	1970	1841	1824
535	162	36	57	1987	1955	1745	1961	1684	**535**	1928	1951	1969	1840	1823
536	353	67	70	1988	1956	1746	1962	1685	**536**	1927	1950	1968	1839	1822
537	184	97	82	1989	1957	1747	1963	1686	**537**	1926	1949	1967	1838	1821
538	16	127	94	1990	1958	1748	1964	1687	**538**	1925	1948	1966	1837	1820
539	207	158	106	1991	1959	1749	1965	1688	**539**	1924	1947	1965	1836	1819
540	39	188	118	1992	1960	1750	1966	1689	**540**	1923	1946	1964	1835	1818
541	230	218	131	1993	1961	1751	1967	1690	**541**	1922	1945	1963	1834	1817
542	61	249	143	1994	1962	1752	1968	1691	**542**	1921	1944	1962	1833	1816
543	253	279	155	1995	1963	1753	1969	1692	**543**	1920	1943	1961	1832	1815
544	84	309	167	1996	1964	1754	1970	1693	**544**	1919	1942	1960	1831	1814
545	276	340	180	1997	1965	1755	1971	1694	**545**	1918	1941	1959	1830	1813
546	107	10	192	1998	1966	1756	1972	1695	**546**	1917	1940	1958	1829	1812
547	298	40	204	1999	1967	1757	1973	1696	**547**	1916	1939	1957	1828	1811
548	130	71	216	1637	1968	1758	1974	1697	**548**	1915	1938	1956	1827	1810
549	321	101	228	1638	1969	1759	1975	1698	**549**	1914	1937	1955	1826	1809
550	153	132	241	1639	1970	1760	1976	1699	**550**	1913	1936	1954	1825	1808
551	344	162	253	1640	1971	1761	1977	1700	**551**	1912	1935	1953	1824	1807
552	176	192	265	1641	1972	1762	1978	1701	**552**	1911	1934	1952	1823	1806
553	7	223	277	1642	1973	1763	1979	1702	**553**	1910	1933	1951	1822	1805
554	198	253	290	1643	1974	1764	1980	1703	**554**	1909	1932	1950	1821	1804
555	30	283	302	1644	1975	1765	1981	1704	**555**	1908	1931	1949	1820	1803
556	221	314	314	1645	1976	1766	1982	1705	**556**	1907	1930	1948	1819	1802
557	53	344	326	1646	1977	1767	1983	1706	**557**	1906	1929	1947	1818	1801
558	244	14	338	1647	1978	1768	1984	1707	**558**	1905	1928	1946	1817	1800
559	75	45	351	1648	1979	1769	1985	1708	**559**	1904	1927	1945	1816	1799
560	267	75	3	1649	1980	1770	1986	1709	**560**	1903	1926	1944	1815	1798

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year **A.D.** if reckoned from **1 B.C.**	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	**B.C.**	Mars.	Merc.	Jup.	Venus.	Sat.
		Degrees.		A.D.	A.D.	A.D.	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
561	98	105	15	1650	1981	1771	1987	1710	**561**	1902	1925	1943	1814	1797
562	290	136	27	1651	1982	1772	1988	1711	**562**	1901	1924	1942	1813	1796
563	121	166	40	1652	1983	1773	1989	1712	**563**	1900	1923	1941	1812	1795
564	312	196	52	1653	1984	1774	1990	1713	**564**	1899	1922	1940	1811	1794
565	144	227	64	1654	1985	1775	1991	1714	**565**	1898	1921	1939	1810	1793
566	335	257	76	1655	1986	1776	1992	1715	**566**	1897	1920	1938	1809	1792
567	167	287	88	1656	1987	1777	1993	1716	**567**	1896	1919	1937	1808	1791
568	358	318	101	1657	1988	1778	1994	1717	**568**	1895	1918	1936	1807	1790
569	189	348	113	1658	1989	1779	1995	1718	**569**	1894	1917	1935	1806	1789
570	21	18	125	1659	1990	1780	1996	1719	**570**	1893	1916	1934	1805	1788
571	212	49	137	1660	1991	1781	1997	1720	**571**	1892	1915	1933	1804	1787
572	44	79	149	1661	1992	1782	1998	1721	**572**	1891	1914	1932	1803	1786
573	235	109	162	1662	1993	1783	1999	1722	**573**	1890	1913	1931	1802	1785
574	66	140	174	1663	1994	1784	1992	1723	**574**	1889	1912	1930	1801	1784
575	258	170	186	1664	1995	1785	1993	1724	**575**	1888	1911	1929	1800	1783
576	89	201	198	1665	1996	1786	1994	1725	**576**	1887	1910	1928	1799	1782
577	281	231	211	1666	1997	1787	1995	1726	**577**	1886	1909	1927	1798	1781
578	112	261	223	1667	1998	1788	1996	1727	**578**	1885	1908	1926	1797	1780
579	303	292	235	1668	1999	1789	1997	1728	**579**	1884	1907	1925	1796	1779
580	135	322	247	1669	1645	1790	1998	1729	**580**	1883	1906	1924	1795	1778
581	326	352	259	1670	1646	1791	1999	1730	**581**	1882	1905	1923	1794	1777
582	158	23	272	1671	1647	1792	1765	1731	**582**	1881	1904	1922	1793	1776
583	349	53	284	1672	1648	1793	1766	1732	**583**	1880	1903	1921	1792	1775
584	180	83	296	1673	1649	1794	1767	1733	**584**	1879	1902	1920	1791	1774
585	12	114	308	1674	1650	1795	1768	1734	**585**	1878	1901	1919	1790	1773
586	203	144	321	1675	1651	1796	1769	1735	**586**	1877	1900	1918	1789	1772
587	35	174	333	1676	1652	1797	1770	1736	**587**	1876	1899	1917	1788	1771
588	226	205	345	1677	1653	1798	1771	1737	**588**	1875	1898	1916	1787	1770
589	58	235	357	1678	1654	1799	1772	1738	**589**	1874	1897	1915	1786	1769
590	249	265	9	1679	1655	1800	1773	1739	**590**	1873	1896	1914	1785	1768
591	80	296	22	1680	1656	1801	1774	1740	**591**	1872	1895	1913	1784	1767
592	272	326	34	1681	1657	1802	1775	1741	**592**	1871	1894	1912	1783	1766
593	103	356	46	1682	1658	1803	1776	1742	**593**	1870	1893	1911	1782	1765
594	295	27	58	1683	1659	1804	1777	1743	**594**	1869	1892	1910	1781	1764
595	126	57	71	1684	1660	1805	1778	1744	**595**	1868	1891	1909	1780	1763
596	317	87	83	1685	1661	1806	1779	1745	**596**	1867	1890	1908	1779	1762
597	149	118	95	1686	1662	1807	1780	1746	**597**	1866	1889	1907	1778	1761
598	340	148	107	1687	1663	1808	1781	1747	**598**	1865	1888	1906	1777	1760
599	172	179	119	1688	1664	1809	1782	1748	**599**	1864	1887	1905	1776	1759
600	3	209	132	1689	1665	1810	1783	1749	**600**	1863	1886	1904	1775	1758
601	194	239	144	1690	1666	1811	1784	1750	**601**	1862	1885	1903	1774	1757
602	26	270	156	1691	1667	1812	1785	1751	**602**	1861	1884	1902	1773	1756
603	217	300	168	1692	1668	1813	1786	1752	**603**	1860	1883	1901	1772	1755
604	49	330	181	1693	1669	1814	1787	1753	**604**	1859	1882	1900	1771	1754
605	240	0	193	1694	1670	1815	1788	1754	**605**	1858	1881	1899	1770	1753
606	71	31	205	1695	1671	1816	1789	1755	**606**	1857	1880	1898	1769	1752
607	262	62	217	1696	1672	1817	1790	1756	**607**	1856	1879	1897	1768	1751
608	94	92	229	1697	1673	1818	1791	1757	**608**	1855	1878	1896	1767	1750
609	286	122	242	1698	1674	1819	1792	1758	**609**	1854	1877	1895	1766	1749
610	117	153	254	1699	1675	1820	1793	1759	**610**	1853	1876	1894	1765	1748
611	308	183	266	1700	1676	1821	1794	1760	**611**	1852	1875	1893	1999	1747
612	140	213	278	1701	1677	1822	1795	1761	**612**	1851	1874	1892	1998	1746
613	331	244	291	1702	1678	1823	1796	1762	**613**	1850	1873	1891	1997	1745
614	163	274	303	1703	1679	1824	1797	1763	**614**	1849	1872	1890	1996	1744
615	354	304	315	1704	1680	1825	1798	1764	**615**	1848	1871	1889	1995	1743
616	185	335	327	1705	1681	1826	1799	1765	**616**	1847	1870	1888	1994	1742
617	17	5	339	1706	1682	1827	1800	1766	**617**	1846	1869	1887	1993	1741
618	208	35	352	1707	1683	1828	1801	1767	**618**	1845	1868	1886	1992	1740
619	40	66	4	1708	1684	1829	1802	1768	**619**	1844	1867	1885	1991	1739
620	231	96	16	1709	1685	1830	1803	1769	**620**	1843	1866	1884	1990	1738
621	62	127	28	1710	1686	1831	1804	1770	**621**	1842	1865	1883	1989	1737
622	254	157	41	1711	1687	1832	1805	1771	**622**	1841	1864	1882	1988	1736
623	85	187	53	1712	1688	1833	1806	1772	**623**	1840	1863	1881	1987	1735
624	277	218	65	1713	1689	1834	1807	1773	**624**	1839	1862	1880	1986	1734
625	108	248	77	1714	1690	1835	1808	1774	**625**	1838	1861	1879	1985	1733
626	299	278	89	1715	1691	1836	1809	1775	**626**	1837	1860	1878	1984	1732
627	131	309	102	1716	1692	1837	1810	1776	**627**	1836	1859	1877	1983	1731
628	322	339	114	1717	1693	1838	1811	1777	**628**	1835	1858	1876	1982	1730
629	154	9	126	1718	1694	1839	1812	1778	**629**	1834	1857	1875	1981	1729
630	345	40	138	1719	1695	1840	1813	1779	**630**	1833	1856	1874	1980	1728
631	177	70	150	1720	1696	1841	1814	1780	**631**	1832	1855	1873	1979	1727
632	8	100	163	1721	1697	1842	1815	1781	**632**	1831	1854	1872	1978	1726
633	199	131	175	1722	1698	1843	1816	1782	**633**	1830	1853	1871	1977	1725
634	31	161	187	1723	1699	1844	1817	1783	**634**	1829	1852	1870	1976	1724
635	222	191	199	1724	1700	1845	1818	1784	**635**	1828	1851	1869	1975	1723
636	54	222	212	1725	1701	1846	1819	1785	**636**	1827	1850	1868	1974	1722
637	245	252	224	1726	1702	1847	1820	1786	**637**	1826	1849	1867	1973	1721
638	76	282	236	1727	1703	1848	1821	1787	**638**	1825	1848	1866	1972	1720
639	268	330	248	1728	1704	1849	1822	1788	**639**	1824	1847	1865	1971	1719
640	99	343	260	1729	1705	1850	1823	1789	**640**	1823	1846	1864	1970	1718

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	B.C.	Mars.	Merc.	Jup.	Venus.	Sat.
		Degrees.		A.D.	A.D.	A.D.	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
641	291	13	273	1730	1706	1851	1824	1790	**641**	1822	1845	1863	1969	1717
642	122	44	285	1731	1707	1852	1825	1791	**642**	1821	1844	1862	1968	1716
643	313	74	297	1732	1708	1853	1826	1792	**643**	1820	1843	1861	1967	1715
644	145	104	309	1733	1709	1854	1827	1793	**644**	1819	1842	1860	1966	1714
645	336	135	322	1734	1710	1855	1828	1794	**645**	1818	1841	1859	1965	1713
646	168	165	334	1735	1711	1856	1829	1795	**646**	1817	1840	1858	1964	1712
647	359	196	346	1736	1712	1857	1830	1796	**647**	1816	1839	1857	1963	1711
648	190	226	358	1737	1713	1858	1831	1797	**648**	1815	1838	1856	1962	1710
649	22	256	10	1738	1714	1859	1832	1798	**649**	1814	1837	1855	1961	1709
650	213	289	23	1739	1715	1860	1833	1799	**650**	1813	1836	1854	1960	1708
651	45	317	35	1740	1716	1861	1834	1800	**651**	1812	1835	1853	1959	1707
652	236	347	47	1741	1717	1862	1835	1801	**652**	1811	1834	1852	1958	1706
653	67	18	59	1742	1718	1863	1836	1802	**653**	1810	1833	1851	1957	1705
654	259	48	72	1743	1719	1864	1837	1803	**654**	1809	1832	1850	1956	1704
655	90	78	84	1744	1720	1865	1838	1904	**655**	1808	1831	1849	1955	1703
656	282	109	96	1745	1721	1866	1839	1805	**656**	1807	1830	1848	1954	1702
657	113	139	108	1746	1722	1867	1840	1806	**657**	1806	1829	1847	1953	1701
658	304	169	120	1747	1723	1868	1841	1807	**658**	1805	1828	1846	1952	1700
659	136	200	133	1748	1724	1869	1842	1808	**659**	1804	1827	1845	1951	1699
660	327	230	145	1749	1725	1870	1843	1809	**660**	1803	1826	1844	1950	1698
661	159	260	157	1750	1726	1871	1844	1810	**661**	1802	1825	1843	1949	1697
662	350	291	169	1751	1727	1872	1845	1811	**662**	1801	1824	1842	1948	1696
663	181	321	182	1752	1728	1873	1846	1812	**663**	1800	1823	1841	1947	1695
664	13	351	194	1753	1729	1874	1847	1813	**664**	1799	1822	1840	1946	1694
665	204	22	206	1754	1730	1875	1848	1814	**665**	1798	1821	1839	1945	1693
666	36	52	218	1755	1731	1876	1849	1815	**666**	1797	1820	1838	1944	1692
667	227	82	230	1756	1732	1877	1850	1816	**667**	1796	1819	1837	1943	1691
668	59	113	243	1757	1733	1878	1851	1817	**668**	1795	1818	1836	1942	1690
669	250	143	255	1758	1734	1879	1852	1818	**669**	1794	1817	1835	1941	1689
670	81	174	267	1759	1735	1880	1853	1819	**670**	1793	1816	1834	1940	1688
671	273	204	279	1760	1736	1881	1854	1820	**671**	1792	1815	1833	1939	1687
672	104	234	292	1761	1737	1882	1855	1821	**672**	1791	1814	1832	1938	1686
673	296	265	304	1762	1738	1883	1856	1822	**673**	1790	1813	1831	1937	1685
674	127	295	316	1763	1739	1884	1857	1823	**674**	1789	1812	1830	1936	1684
675	318	325	328	1764	1740	1885	1858	1824	**675**	1788	1811	1829	1935	1683
676	150	356	340	1765	1741	1886	1859	1825	**676**	1787	1810	1828	1934	1682
677	341	26	353	1766	1742	1887	1860	1826	**677**	1786	1809	1827	1933	1681
678	173	56	5	1767	1743	1888	1861	1827	**678**	1785	1808	1826	1932	1680
679	4	87	17	1768	1744	1889	1862	1828	**679**	1784	1807	1825	1931	1679
680	195	117	29	1769	1745	1890	1863	1829	**680**	1783	1806	1824	1930	1678
681	27	147	42	1770	1746	1891	1864	1830	**681**	1782	1805	1823	1929	1677
682	218	178	54	1771	1747	1892	1865	1831	**682**	1781	1804	1822	1928	1676
683	50	208	66	1772	1748	1893	1866	1832	**683**	1780	1803	1821	1927	1999
684	241	238	78	1773	1749	1894	1867	1833	**684**	1779	1802	1820	1926	1998
685	72	269	90	1774	1750	1895	1868	1834	**685**	1778	1801	1819	1925	1997
686	263	299	103	1775	1751	1896	1869	1835	**686**	1777	1800	1818	1924	1996
687	95	329	115	1776	1752	1897	1870	1836	**687**	1776	1799	1817	1923	1995
688	287	359	127	1777	1753	1898	1871	1837	**688**	1775	1798	1816	1922	1994
689	118	29	139	1778	1754	1899	1872	1838	**689**	1774	1797	1815	1921	1993
690	309	60	151	1779	1755	1900	1873	1839	**690**	1773	1796	1814	1920	1992
691	141	90	164	1780	1756	1901	1874	1840	**691**	1772	1795	1813	1919	1991
692	332	120	176	1781	1757	1902	1875	1841	**692**	1771	1794	1812	1918	1990
693	164	151	188	1782	1758	1903	1876	1842	**693**	1770	1793	1811	1917	1989
694	355	181	200	1783	1759	1904	1877	1843	**694**	1769	1792	1810	1916	1988
695	186	211	213	1784	1760	1905	1878	1844	**695**	1768	1791	1809	1915	1987
696	18	242	225	1785	1761	1906	1879	1845	**696**	1767	1790	1808	1914	1986
697	209	272	237	1786	1762	1907	1880	1846	**697**	1766	1789	1807	1913	1985
698	41	302	249	1787	1763	1908	1881	1847	**698**	1765	1788	1806	1912	1984
699	232	333	261	1788	1764	1909	1882	1848	**699**	1764	1787	1805	1911	1983
700	63	3	274	1789	1765	1910	1883	1849	**700**	1763	1786	1804	1910	1982
701	255	33	286	1790	1766	1911	1884	1850	**701**	1762	1785	1803	1909	1981
702	86	64	298	1791	1767	1912	1885	1851	**702**	1761	1784	1802	1908	1980
703	278	94	310	1792	1768	1913	1886	1852	**703**	1760	1783	1801	1907	1979
704	109	125	323	1793	1769	1914	1887	1853	**704**	1759	1782	1800	1906	1978
705	300	155	335	1794	1770	1915	1888	1854	**705**	1758	1781	1799	1905	1977
706	132	185	347	1795	1771	1916	1889	1855	**706**	1757	1780	1798	1904	1976
707	323	216	359	1796	1772	1917	1890	1856	**707**	1756	1779	1797	1903	1975
708	155	246	12	1797	1773	1918	1891	1857	**708**	1755	1778	1796	1902	1974
709	346	276	24	1798	1774	1919	1892	1858	**709**	1754	1777	1795	1901	1973
710	178	307	36	1799	1775	1920	1893	1859	**710**	1753	1776	1794	1900	1972
711	9	337	48	1800	1776	1921	1894	1860	**711**	1752	1775	1793	1899	1971
712	200	7	60	1801	1777	1922	1895	1861	**712**	1751	1774	1792	1898	1970
713	32	38	73	1802	1778	1923	1896	1862	**713**	1750	1773	1791	1897	1969
714	223	68	85	1803	1779	1924	1897	1863	**714**	1749	1772	1790	1896	1968
715	55	98	97	1804	1780	1925	1898	1864	**715**	1748	1771	1789	1895	1967
716	246	129	109	1805	1781	1926	1899	1865	**716**	1747	1770	1788	1894	1966
717	77	159	121	1806	1782	1927	1900	1866	**717**	1746	1769	1787	1893	1965
718	269	189	134	1807	1783	1928	1901	1867	**718**	1745	1768	1786	1892	1964
719	100	220	146	1808	1784	1929	1902	1868	**719**	1744	1767	1785	1891	1963
720	292	250	158	1809	1785	1930	1903	1869	**720**	1743	1766	1784	1890	1962

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year **A.D.** if reckoned from **1 B.C.**	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	**B.C.**	Mars.	Merc.	Jup.	Venus.	Sat.
		Degrees.		A.D.	A.D.	A.D.	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
721	123	280	170	1810	1786	1931	1904	1870	**721**	1742	1765	1783	1889	1961
722	314	311	183	1811	1787	1932	1905	1871	**722**	1741	1764	1782	1888	1960
723	146	341	195	1812	1788	1933	1906	1872	**723**	1740	1763	1781	1887	1959
724	357	11	207	1813	1789	1934	1907	1873	**724**	1739	1762	1780	1886	1958
725	169	42	219	1814	1790	1935	1908	1874	**725**	1738	1761	1779	1885	1957
726	0	72	231	1815	1791	1936	1909	1875	**726**	1737	1760	1778	1884	1956
727	191	102	244	1816	1792	1937	1910	1876	**727**	1736	1759	1777	1883	1955
728	23	133	256	1817	1793	1938	1911	1877	**728**	1735	1758	1776	1882	1954
729	214	163	268	1818	1794	1939	1912	1878	**729**	1734	1757	1775	1881	1953
730	46	194	280	1819	1795	1940	1913	1879	**730**	1733	1756	1774	1880	1952
731	237	224	293	1820	1796	1941	1914	1880	**731**	1732	1755	1773	1879	1951
732	68	254	305	1821	1797	1942	1915	1881	**732**	1731	1754	1772	1878	1950
733	259	285	317	1822	1798	1943	1916	1882	**733**	1730	1753	1771	1877	1949
734	91	315	329	1823	1799	1944	1917	1883	**734**	1729	1752	1770	1876	1948
735	283	345	341	1824	1800	1945	1918	1884	**735**	1728	1751	1769	1875	1947
736	114	16	354	1825	1801	1946	1919	1885	**736**	1727	1750	1768	1874	1946
737	305	46	6	1826	1802	1947	1920	1886	**737**	1726	1749	1767	1873	1945
738	137	76	18	1827	1803	1948	1921	1887	**738**	1725	1748	1766	1872	1944
739	328	107	30	1828	1804	1949	1922	1888	**739**	1724	1747	1765	1871	1943
740	160	137	43	1829	1805	1950	1923	1889	**740**	1723	1746	1764	1870	1942
741	351	167	55	1830	1806	1951	1924	1890	**741**	1722	1745	1763	1869	1941
742	182	198	67	1831	1807	1952	1925	1891	**742**	1721	1744	1762	1868	1999
743	14	228	79	1832	1808	1953	1926	1892	**743**	1720	1743	1761	1867	1998
744	205	258	91	1833	1809	1954	1927	1893	**744**	1719	1742	1760	1866	1997
745	37	289	104	1834	1810	1955	1928	1894	**745**	1718	1741	1759	1865	1996
746	228	319	116	1835	1811	1956	1929	1895	**746**	1717	1740	1758	1864	1995
747	59	349	128	1836	1812	1957	1930	1896	**747**	1716	1739	1757	1863	1994
748	251	20	140	1837	1813	1958	1931	1897	**748**	1715	1738	1756	1862	1993
749	82	50	152	1838	1814	1959	1932	1898	**749**	1714	1737	1755	1861	1992
750	274	80	165	1839	1815	1960	1933	1899	**750**	1713	1736	1754	1860	1991
751	105	111	177	1840	1816	1961	1934	1900	**751**	1712	1735	1753	1859	1990
752	296	141	189	1841	1817	1962	1935	1901	**752**	1711	1734	1752	1858	1989
753	128	172	201	1842	1818	1963	1936	1902	**753**	1710	1733	1751	1857	1988
754	319	202	214	1843	1819	1964	1937	1903	**754**	1709	1732	1750	1856	1987
755	151	232	226	1844	1820	1965	1938	1904	**755**	1708	1731	1749	1855	1986
756	342	263	238	1845	1821	1966	1939	1905	**756**	1707	1730	1748	1854	1985
757	174	293	250	1846	1822	1967	1940	1906	**757**	1706	1729	1747	1853	1984
758	5	323	262	1847	1823	1968	1941	1907	**758**	1705	1728	1746	1852	1983
759	196	354	275	1848	1824	1969	1942	1908	**759**	1704	1727	1745	1851	1982
760	28	24	287	1849	1825	1970	1943	1909	**760**	1703	1726	1744	1850	1981
761	219	54	299	1850	1826	1971	1944	1910	**761**	1702	1725	1743	1849	1980
762	51	85	311	1851	1827	1972	1945	1911	**762**	1701	1724	1742	1848	1979
763	242	115	324	1852	1828	1973	1946	1912	**763**	1700	1723	1741	1847	1978
764	73	145	336	1853	1829	1974	1947	1913	**764**	1699	1722	1740	1846	1977
765	265	176	348	1854	1830	1975	1948	1914	**765**	1698	1721	1739	1845	1976
766	96	206	0	1855	1831	1976	1949	1915	**766**	1697	1720	1999	1844	1975
767	288	236	12	1856	1832	1977	1950	1916	**767**	1696	1719	1998	1843	1974
768	119	267	24	1857	1833	1978	1951	1917	**768**	1695	1718	1997	1842	1973
769	310	297	37	1858	1834	1979	1952	1918	**769**	1694	1717	1996	1841	1972
770	142	327	49	1859	1835	1980	1953	1919	**770**	1693	1716	1995	1840	1971
771	333	358	61	1860	1836	1981	1954	1920	**771**	1692	1715	1994	1839	1970
772	165	28	73	1861	1837	1982	1955	1921	**772**	1691	1714	1993	1838	1969
773	356	58	85	1862	1838	1983	1956	1922	**773**	1690	1713	1992	1837	1968
774	187	89	98	1863	1839	1984	1957	1923	**774**	1689	1712	1991	1836	1967
775	19	119	110	1864	1840	1985	1958	1924	**775**	1688	1711	1990	1835	1966
776	210	150	122	1865	1841	1986	1959	1925	**776**	1687	1710	1989	1834	1965
777	42	180	134	1866	1842	1987	1960	1926	**777**	1686	1709	1988	1833	1964
778	233	210	147	1867	1843	1988	1961	1927	**778**	1685	1708	1987	1832	1963
779	64	241	159	1868	1844	1989	1962	1928	**779**	1684	1707	1986	1831	1962
780	256	271	171	1869	1845	1990	1963	1929	**780**	1683	1706	1985	1830	1961
781	87	301	183	1870	1846	1991	1964	1930	**781**	1682	1705	1984	1829	1960
782	279	332	195	1871	1847	1992	1965	1931	**782**	1681	1704	1983	1828	1959
783	110	2	208	1872	1848	1993	1966	1932	**783**	1680	1703	1982	1827	1958
784	301	32	220	1873	1849	1994	1967	1933	**784**	1679	1702	1981	1826	1957
785	133	63	232	1874	1850	1995	1968	1934	**785**	1678	1701	1980	1825	1956
786	324	93	244	1875	1851	1996	1969	1935	**786**	1677	1700	1979	1824	1955
787	156	123	257	1876	1852	1997	1970	1936	**787**	1676	1699	1978	1823	1954
788	347	154	269	1877	1853	1998	1971	1937	**788**	1675	1698	1977	1822	1953
789	179	184	281	1878	1854	1999	1972	1938	**789**	1674	1697	1976	1821	1952
790	10	214	293	1879	1855	1739	1973	1939	**790**	1673	1696	1975	1820	1951
791	201	245	305	1880	1856	1740	1974	1940	**791**	1672	1695	1974	1819	1950
792	33	275	318	1881	1857	1741	1975	1941	**792**	1671	1694	1973	1818	1949
793	224	305	330	1882	1858	1742	1976	1942	**793**	1670	1693	1972	1817	1948
794	56	336	342	1883	1859	1743	1977	1943	**794**	1669	1692	1971	1816	1947
795	247	6	354	1884	1860	1744	1978	1944	**795**	1668	1691	1970	1815	1946
796	78	36	7	1885	1861	1745	1979	1945	**796**	1667	1690	1969	1814	1945
797	270	67	19	1886	1862	1746	1980	1946	**797**	1666	1689	1968	1813	1944
798	101	97	31	1887	1863	1747	1981	1947	**798**	1665	1688	1967	1812	1943
799	293	128	43	1888	1864	1748	1982	1948	**799**	1664	1687	1966	1811	1942
800	124	158	55	1889	1865	1749	1983	1949	**800**	1663	1686	1965	1810	1941

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	B.C.	Mars.	Merc.	Jup.	Venus.	Sat.
		Degrees.		A.D.	A.D.	A.D.	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
801	315	188	68	1890	1866	1750	1984	1950	801	1662	1685	1964	1809	1940
802	147	219	80	1891	1867	1751	1985	1951	802	1661	1684	1963	1808	1939
803	338	249	92	1892	1868	1752	1986	1952	803	1660	1683	1962	1807	1938
804	170	279	104	1893	1869	1753	1987	1953	804	1659	1682	1961	1806	1937
805	1	310	116	1894	1870	1754	1988	1954	805	1658	1681	1960	1805	1936
806	192	340	129	1895	1871	1755	1989	1955	806	1657	1680	1959	1804	1935
807	24	10	141	1896	1872	1756	1990	1956	807	1656	1679	1958	1803	1934
808	215	41	153	1897	1873	1757	1991	1957	808	1655	1678	1957	1802	1933
809	47	71	165	1898	1874	1758	1992	1958	809	1654	1677	1956	1801	1932
810	238	101	178	1899	1875	1759	1993	1959	810	1653	1676	1955	1800	1931
811	69	132	190	1900	1876	1760	1994	1960	811	1652	1675	1954	1799	1930
812	261	162	202	1901	1877	1761	1995	1961	812	1651	1674	1953	1798	1929
813	92	192	214	1902	1878	1762	1996	1962	813	1650	1673	1952	1797	1928
814	284	223	226	1903	1879	1763	1997	1963	814	1649	1672	1951	1796	1927
815	115	253	239	1904	1880	1764	1998	1964	815	1648	1671	1950	1795	1926
816	306	283	251	1905	1881	1765	1999	1965	816	1647	1670	1949	1794	1925
817	138	314	263	1906	1882	1766	1765	1966	817	1646	1669	1948	1793	1924
818	329	344	275	1907	1883	1767	1766	1967	818	1645	1668	1947	1792	1923
819	161	14	288	1908	1884	1768	1767	1968	819	1644	1667	1946	1791	1922
820	352	45	300	1909	1885	1769	1768	1969	820	1643	1666	1945	1790	1921
821	183	75	312	1910	1886	1770	1769	1970	821	1642	1665	1944	1789	1920
822	15	105	324	1911	1887	1771	1770	1971	822	1641	1664	1943	1788	1919
823	206	136	336	1912	1888	1772	1771	1972	823	1640	1663	1942	1787	1918
824	38	166	349	1913	1889	1773	1772	1973	824	1639	1662	1941	1786	1917
825	229	197	1	1914	1890	1774	1773	1974	825	1638	1661	1940	1785	1916
826	60	227	13	1915	1891	1775	1774	1975	826	1637	1660	1939	1784	1915
827	252	257	25	1916	1892	1776	1775	1976	827	1715	1659	1938	1783	1914
828	83	288	38	1917	1893	1777	1776	1977	828	1714	1658	1937	1782	1913
829	275	318	50	1918	1894	1778	1777	1978	829	1713	1657	1936	1781	1912
830	106	348	62	1919	1895	1779	1778	1979	830	1712	1656	1935	1780	1911
831	297	19	74	1920	1896	1780	1779	1980	831	1711	1655	1934	1779	1910
832	129	49	86	1921	1897	1781	1780	1981	832	1710	1654	1933	1778	1909
833	320	79	99	1922	1898	1782	1781	1982	833	1709	1653	1932	1777	1908
834	152	110	111	1923	1899	1783	1782	1983	834	1708	1652	1931	1776	1907
835	343	140	123	1924	1900	1784	1783	1984	835	1707	1651	1930	1775	1906
836	175	170	135	1925	1901	1785	1784	1985	836	1706	1650	1929	1774	1905
837	6	201	147	1926	1902	1786	1785	1986	837	1705	1649	1928	1773	1904
838	197	231	160	1927	1903	1787	1786	1987	838	1704	1648	1927	1772	1903
839	29	261	172	1928	1904	1788	1787	1988	839	1703	1647	1926	1771	1902
840	220	292	184	1929	1905	1789	1788	1989	840	1702	1646	1925	1770	1901
841	52	322	196	1930	1906	1790	1789	1990	841	1701	1645	1924	1769	1900
842	243	352	209	1931	1907	1791	1790	1991	842	1700	1999	1923	1768	1899
843	74	23	221	1932	1908	1792	1791	1992	843	1699	1998	1922	1767	1898
844	266	53	233	1933	1909	1793	1792	1993	844	1698	1997	1921	1766	1897
845	97	83	245	1934	1910	1794	1793	1994	845	1697	1996	1920	1765	1896
846	289	114	257	1935	1911	1795	1794	1995	846	1696	1995	1919	1999	1895
847	120	144	270	1936	1912	1796	1795	1996	847	1695	1994	1918	1998	1894
848	311	176	282	1937	1913	1797	1796	1997	848	1694	1993	1917	1997	1893
849	143	205	294	1938	1914	1798	1797	1998	849	1693	1992	1916	1996	1892
850	334	235	306	1939	1915	1799	1798	1999	850	1692	1991	1915	1995	1891
851	166	266	319	1940	1916	1800	1799	1617	851	1691	1990	1914	1994	1890
852	357	296	331	1941	1917	1801	1800	1618	852	1690	1989	1913	1993	1889
853	188	326	343	1942	1918	1802	1801	1619	853	1689	1988	1912	1992	1888
854	20	357	355	1943	1919	1803	1802	1620	854	1688	1987	1911	1991	1887
855	211	27	7	1944	1920	1804	1803	1621	855	1687	1986	1910	1990	1886
856	43	57	20	1945	1921	1805	1804	1622	856	1686	1985	1909	1989	1885
857	234	88	32	1946	1922	1806	1805	1623	857	1685	1984	1908	1988	1884
858	65	118	44	1947	1923	1807	1805	1624	858	1684	1983	1907	1987	1883
859	257	148	56	1948	1924	1808	1807	1625	859	1683	1982	1906	1986	1882
860	88	179	69	1949	1925	1809	1808	1626	860	1682	1981	1905	1985	1881
861	280	209	81	1950	1926	1810	1809	1627	861	1681	1980	1904	1984	1880
862	111	239	93	1951	1927	1811	1810	1628	862	1680	1979	1903	1983	1879
863	302	270	105	1952	1928	1812	1811	1629	863	1679	1978	1902	1982	1878
864	134	300	117	1953	1929	1813	1812	1630	864	1678	1977	1901	1981	1877
865	325	330	130	1954	1930	1814	1813	1631	865	1677	1976	1900	1980	1876
866	157	1	142	1955	1931	1815	1814	1632	866	1676	1975	1899	1979	1875
867	348	31	154	1956	1932	1816	1815	1633	867	1675	1974	1898	1978	1874
868	179	61	166	1957	1933	1817	1816	1634	868	1674	1973	1897	1977	1873
869	11	92	179	1958	1934	1818	1817	1635	869	1673	1972	1896	1976	1872
870	202	122	191	1959	1935	1819	1818	1636	870	1672	1971	1895	1975	1871
871	34	153	203	1960	1936	1820	1819	1637	871	1671	1970	1894	1974	1870
872	225	183	215	1961	1937	1821	1820	1638	872	1670	1969	1893	1973	1869
873	57	213	227	1962	1938	1822	1821	1639	873	1669	1968	1892	1972	1868
874	248	244	240	1963	1939	1823	1822	1640	874	1668	1967	1891	1971	1867
875	79	274	252	1964	1940	1824	1823	1641	875	1667	1966	1890	1970	1866
876	271	304	264	1965	1941	1825	1824	1642	876	1666	1965	1889	1969	1865
877	102	335	276	1966	1942	1826	1825	1643	877	1665	1964	1888	1968	1864
878	294	5	289	1967	1943	1827	1826	1644	878	1664	1963	1887	1967	1863
879	125	35	301	1968	1944	1828	1827	1645	879	1663	1962	1886	1966	1862
880	316	66	313	1969	1945	1829	1828	1646	880	1662	1961	1885	1965	1861

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year **A.D.** if reckoned from **1 B.C.** **A.D.**	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	**B.C.**	Mars.	Merc.	Jup.	Venus.	Sat.
		Degrees.		A.D.	A.D.	A.D.	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
881	148	96	325	1970	1946	1830	1829	1647	**881**	1661	1960	1884	1964	1860
882	339	126	337	1971	1947	1831	1830	1648	**882**	1660	1959	1883	1963	1859
883	171	157	350	1972	1948	1832	1831	1649	**883**	1659	1958	1882	1962	1858
884	2	187	2	1973	1949	1833	1832	1650	**884**	1658	1957	1881	1961	1857
885	193	217	14	1974	1950	1834	1833	1651	**885**	1657	1956	1880	1960	1856
886	25	248	26	1975	1951	1835	1834	1652	**886**	1656	1955	1879	1959	1855
887	216	278	39	1976	1952	1836	1835	1653	**887**	1655	1954	1878	1958	1854
888	48	308	51	1977	1953	1837	1836	1654	**888**	1654	1953	1877	1957	1853
889	289	339	63	1978	1954	1838	1837	1655	**889**	1653	1952	1876	1956	1852
890	70	9	75	1979	1955	1839	1838	1656	**890**	1652	1951	1875	1955	1851
891	261	39	87	1980	1956	1840	1839	1657	**891**	1651	1950	1874	1954	1850
892	93	70	100	1981	1957	1841	1840	1658	**892**	1650	1949	1873	1953	1849
893	285	100	112	1982	1958	1842	1841	1659	**893**	1649	1948	1872	1952	1848
894	116	131	124	1983	1959	1843	1842	1660	**894**	1648	1947	1871	1951	1847
895	307	161	136	1984	1960	1844	1843	1661	**895**	1647	1946	1870	1950	1846
896	139	191	148	1985	1961	1845	1844	1662	**896**	1646	1945	1869	1949	1845
897	330	222	161	1986	1962	1846	1845	1663	**897**	1645	1944	1868	1948	1844
898	162	252	173	1987	1963	1847	1846	1664	**898**	1644	1943	1867	1947	1843
899	353	282	185	1988	1964	1848	1847	1665	**899**	1643	1942	1866	1946	1842
900	184	313	197	1989	1965	1849	1848	1666	**900**	1642	1941	1865	1945	1841
901	16	343	210	1990	1966	1850	1849	1667	**901**	1641	1940	1864	1944	1840
902	207	13	222	1991	1967	1851	1850	1668	**902**	1640	1939	1863	1943	1839
903	39	44	234	1992	1968	1852	1851	1669	**903**	1639	1938	1862	1942	1838
904	230	74	246	1993	1969	1853	1852	1670	**904**	1638	1937	1861	1941	1837
905	61	104	258	1994	1970	1854	1853	1671	**905**	1637	1936	1860	1940	1836
906	253	135	271	1995	1971	1855	1854	1672	**906**	1926	1935	1859	1939	1835
907	84	165	283	1996	1972	1856	1855	1673	**907**	1919	1934	1858	1938	1834
908	276	195	295	1997	1973	1857	1856	1674	**908**	1918	1933	1857	1937	1833
909	107	226	307	1998	1974	1858	1857	1675	**909**	1917	1932	1856	1936	1832
910	298	256	320	1999	1975	1859	1858	1676	**910**	1916	1931	1855	1935	1831
911	130	286	332	1637	1976	1860	1859	1677	**911**	1915	1930	1854	1934	1830
912	321	317	344	1638	1977	1861	1860	1678	**912**	1914	1929	1853	1933	1829
913	153	347	356	1639	1978	1862	1861	1679	**913**	1913	1928	1852	1932	1828
914	344	17	8	1640	1979	1863	1862	1680	**914**	1912	1927	1851	1931	1827
915	176	48	21	1641	1980	1864	1863	1681	**915**	1911	1926	1850	1930	1826
916	7	78	33	1642	1981	1865	1864	1682	**916**	1910	1925	1849	1929	1825
917	198	108	45	1643	1982	1866	1865	1683	**917**	1909	1924	1848	1928	1824
918	30	139	57	1644	1983	1867	1866	1684	**918**	1908	1923	1847	1927	1823
919	221	169	70	1645	1984	1868	1867	1685	**919**	1907	1922	1846	1926	1822
920	53	200	82	1646	1985	1869	1868	1686	**920**	1906	1921	1845	1925	1821
921	244	230	94	1647	1986	1870	1869	1687	**921**	1905	1920	1844	1924	1820
922	75	260	106	1648	1987	1871	1870	1688	**922**	1904	1919	1843	1923	1819
923	267	291	118	1649	1988	1872	1871	1689	**923**	1903	1918	1842	1922	1818
924	98	321	131	1650	1989	1873	1872	1690	**924**	1902	1917	1841	1921	1817
925	290	351	143	1651	1990	1874	1873	1691	**925**	1901	1916	1840	1920	1816
926	121	22	155	1652	1991	1875	1874	1692	**926**	1900	1915	1839	1919	1815
927	312	52	167	1653	1992	1876	1875	1693	**927**	1899	1914	1838	1918	1814
928	144	82	180	1654	1993	1877	1876	1694	**928**	1898	1913	1837	1917	1813
929	335	113	192	1655	1994	1878	1877	1695	**929**	1897	1912	1836	1916	1812
930	167	143	204	1656	1995	1879	1878	1696	**930**	1896	1911	1835	1915	1811
931	358	173	216	1657	1996	1880	1879	1697	**931**	1895	1910	1834	1914	1810
932	189	204	228	1658	1997	1881	1880	1698	**932**	1894	1909	1833	1913	1809
933	21	234	241	1659	1998	1882	1881	1699	**933**	1893	1908	1832	1912	1808
934	212	264	253	1660	1999	1883	1882	1700	**934**	1892	1907	1831	1911	1807
935	44	295	265	1661	1645	1884	1883	1701	**935**	1891	1906	1830	1910	1806
936	235	325	277	1662	1646	1885	1884	1702	**936**	1890	1905	1829	1909	1805
937	66	355	290	1663	1647	1886	1385	1703	**937**	1889	1904	1828	1908	1804
938	258	26	302	1664	1648	1887	1886	1704	**938**	1888	1903	1827	1907	1803
939	89	56	314	1665	1649	1888	1887	1705	**939**	1887	1902	1826	1906	1802
940	281	86	326	1666	1650	1889	1888	1706	**940**	1886	1901	1825	1905	1801
941	112	117	338	1667	1651	1890	1889	1707	**941**	1885	1900	1824	1904	1800
942	303	147	351	1668	1652	1891	1890	1708	**942**	1884	1899	1823	1903	1799
943	135	178	3	1669	1653	1892	1891	1709	**943**	1883	1898	1822	1902	1798
944	326	208	15	1670	1654	1893	1892	1710	**944**	1882	1897	1821	1901	1797
945	158	238	27	1671	1655	1894	1893	1711	**945**	1881	1896	1820	1900	1796
946	349	269	40	1672	1656	1895	1894	1712	**946**	1880	1895	1819	1899	1795
947	180	299	52	1673	1657	1896	1895	1713	**947**	1879	1894	1818	1898	1794
948	12	329	64	1974	1658	1897	1896	1714	**948**	1878	1893	1817	1897	1793
949	203	0	76	1675	1659	1898	1897	1715	**949**	1877	1892	1816	1896	1792
950	35	30	88	1676	1660	1899	1898	1716	**950**	1876	1891	1815	1895	1791
951	226	61	101	1677	1661	1900	1899	1717	**951**	1875	1890	1814	1894	1790
952	58	91	113	1678	1662	1901	1900	1718	**952**	1874	1889	1813	1893	1789
953	249	121	125	1679	1663	1902	1901	1719	**953**	1873	1888	1812	1892	1788
954	80	152	137	1680	1664	1903	1902	1720	**954**	1872	1887	1811	1891	1787
955	272	182	149	1681	1665	1904	1903	1721	**955**	1871	1886	1810	1890	1786
956	103	212	162	1682	1666	1905	1904	1722	**956**	1870	1885	1809	1889	1785
957	295	243	174	1683	1667	1906	1905	1723	**957**	1869	1884	1808	1888	1784
958	126	273	186	1684	1668	1907	1906	1724	**958**	1868	1883	1807	1887	1783
959	317	303	198	1685	1669	1908	1907	1725	**959**	1867	1882	1806	1886	1782
960	149	334	211	1686	1670	1909	1908	1726	**960**	1866	1881	1805	1885	1781

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Venus.	Sat.	B.C.	Mars.	Merc.	Jup.	Venus.	Sat.
		Degrees.		A.D.	A.D.	A.D.	A.D.	A.D.		A.D.	A.D.	A.D.	A.D.	A.D.
961	340	4	223	1687	1671	1910	1909	1727	**961**	1865	1880	1804	1884	1780
962	172	34	235	1688	1672	1911	1910	1728	**962**	1864	1879	1803	1883	1779
963	3	65	247	1689	1673	1912	1911	1729	**963**	1863	1878	1802	1882	1778
964	194	95	259	1690	1674	1913	1912	1730	**964**	1862	1877	1801	1881	1777
965	26	126	272	1691	1675	1914	1913	1731	**965**	1861	1876	1800	1880	1776
966	217	156	284	1692	1676	1915	1914	1732	**966**	1860	1875	1799	1879	1775
967	49	186	296	1693	1677	1916	1915	1733	**967**	1859	1874	1798	1878	1774
968	240	217	308	1694	1678	1917	1916	1734	**968**	1858	1873	1797	1877	1773
969	71	247	321	1695	1679	1918	1917	1735	**969**	1857	1872	1796	1876	1772
970	262	277	333	1696	1680	1919	1918	1736	**970**	1856	1871	1795	1875	1771
971	94	308	345	1697	1681	1920	1919	1737	**971**	1855	1870	1794	1874	1770
972	286	338	357	1698	1682	1921	1920	1738	**972**	1854	1869	1793	1873	1769
973	117	8	9	1699	1683	1922	1921	1739	**973**	1853	1868	1792	1872	1768
974	308	39	22	1700	1684	1923	1922	1740	**974**	1852	1867	1791	1871	1767
975	140	69	34	1701	1685	1924	1923	1741	**975**	1851	1866	1790	1870	1766
976	331	99	46	1702	1686	1925	1924	1742	**976**	1850	1865	1789	1869	1765
977	168	130	58	1703	1687	1926	1925	1743	**977**	1849	1864	1788	1868	1764
978	354	160	71	1704	1688	1927	1926	1744	**978**	1848	1863	1787	1867	1763
979	185	190	83	1705	1689	1928	1927	1745	**979**	1847	1862	1786	1866	1762
980	17	221	95	1706	1690	1929	1928	1746	**980**	1846	1861	1785	1865	1761
981	208	251	107	1707	1691	1930	1929	1747	**981**	1845	1860	1784	1864	1760
982	40	281	119	1708	1692	1931	1930	1748	**982**	1844	1859	1783	1863	1759
983	231	312	132	1709	1693	1932	1931	1749	**983**	1843	1858	1782	1862	1758
984	62	342	144	1710	1694	1933	1932	1750	**984**	1842	1857	1781	1861	1757
985	254	12	156	1711	1695	1934	1933	1751	**985**	1841	1856	1780	1860	1756
986	85	43	168	1712	1696	1935	1934	1752	**986**	1840	1855	1779	1859	1755
987	277	73	181	1713	1697	1936	1935	1753	**987**	1839	1854	1778	1858	1754
988	108	103	193	1714	1698	1937	1936	1754	**988**	1838	1853	1777	1857	1753
989	299	134	205	1715	1699	1938	1937	1755	**989**	1837	1852	1776	1856	1752
990	131	164	217	1716	1700	1939	1938	1756	**990**	1836	1851	1775	1855	1751
991	322	195	229	1717	1701	1940	1939	1757	**991**	1835	1850	1774	1854	1750
992	154	225	242	1718	1702	1941	1940	1758	**992**	1834	1849	1773	1853	1749
993	345	255	254	1719	1703	1942	1941	1759	**993**	1833	1848	1772	1852	1748
994	177	286	266	1720	1704	1943	1942	1760	**994**	1832	1847	1771	1851	1747
995	8	316	278	1721	1705	1944	1943	1761	**995**	1831	1846	1770	1850	1746
996	199	346	291	1722	1706	1945	1944	1762	**996**	1830	1845	1769	1849	1745
997	31	17	303	1723	1707	1946	1945	1763	**997**	1829	1844	1768	1848	1744
998	222	47	315	1724	1708	1947	1946	1764	**998**	1828	1843	1767	1847	1743
999	54	77	327	1725	1709	1948	1947	1765	**999**	1827	1842	1766	1846	1742
1000	245	108	339	1726	1710	1949	1948	1766	**1000**	1826	1841	1765	1845	1741
1001	76	138	352	1727	1711	1950	1949	1767	**1001**	1825	1840	1764	1844	1740
1002	268	168	4	1728	1712	1951	1950	1768	**1002**	1824	1839	1763	1843	1739
1003	99	198	16	1729	1713	1952	1951	1769	**1003**	1823	1838	1762	1842	1738
1004	291	229	28	1730	1714	1953	1952	1770	**1004**	1822	1837	1761	1841	1737
1005	122	259	40	1731	1715	1954	1953	1771	**1005**	1821	1836	1760	1840	1736
1006	314	289	52	1732	1716	1955	1954	1772	**1006**	1820	1835	1759	1839	1735
1007	145	320	65	1733	1717	1956	1955	1773	**1007**	1819	1834	1758	1838	1734
1008	336	350	77	1734	1718	1957	1956	1774	**1008**	1818	1833	1757	1837	1733
1009	168	21	89	1735	1719	1958	1957	1775	**1009**	1817	1832	1756	1836	1732
1010	359	51	101	1736	1720	1959	1958	1776	**1010**	1816	1831	1755	1835	1731
1011	191	81	113	1737	1721	1960	1959	1777	**1011**	1815	1830	1754	1834	1730
1012	22	112	126	1738	1722	1961	1960	1778	**1012**	1814	1829	1753	1833	1729
1013	213	142	138	1739	1723	1962	1961	1779	**1013**	1813	1828	1752	1832	1728
1014	45	172	150	1740	1724	1963	1962	1780	**1014**	1812	1827	1751	1831	1727
1015	236	203	162	1741	1725	1964	1963	1781	**1015**	1811	1826	1750	1830	1726
1016	68	233	175	1742	1726	1965	1964	1782	**1016**	1810	1825	1749	1829	1725
1017	259	263	187	1743	1727	1966	1965	1783	**1017**	1809	1824	1748	1828	1724
1018	91	294	199	1744	1728	1967	1966	1784	**1018**	1808	1823	1747	1827	1723
1019	282	324	211	1745	1729	1968	1967	1785	**1019**	1807	1822	1746	1826	1722
1020	113	354	223	1746	1730	1969	1968	1786	**1020**	1806	1821	1745	1825	1721
1021	305	25	236	1747	1731	1970	1969	1787	**1021**	1805	1820	1744	1824	1720
1022	136	55	248	1748	1732	1971	1970	1788	**1022**	1804	1819	1743	1823	1719
1023	328	86	260	1749	1733	1972	1971	1789	**1023**	1803	1818	1742	1822	1718
1024	159	116	272	1750	1734	1973	1972	1790	**1024**	1802	1817	1741	1821	1717

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years ; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Mero.	Jup.	Ven.	Sat.
	Degrees.			A.D.	A.D.	A.D.	A.D.	A.D.
1025	350	146	285	1751	1735	1974	1973	1791
1026	182	176	297	1752	1736	1975	1974	1792
1027	13	207	309	1753	1737	1976	1975	1793
1028	205	237	321	1754	1738	1977	1976	1794
1029	36	267	333	1755	1739	1978	1977	1795
1030	227	298	346	1756	1740	1979	1978	1796
1031	59	328	358	1757	1741	1980	1979	1797
1032	250	359	10	1758	1742	1981	1980	1798
1033	82	29	22	1759	1743	1982	1981	1799
1034	278	59	34	1760	1744	1983	1982	1800
1035	104	90	47	1761	1745	1984	1983	1801
1036	296	120	59	1762	1746	1985	1984	1802
1037	127	150	71	1763	1747	1986	1985	1803
1038	319	181	83	1764	1748	1987	1986	1804
1039	150	211	96	1765	1749	1988	1987	1805
1040	341	241	108	1766	1750	1989	1988	1806
1041	173	272	120	1767	1751	1990	1989	1807
1042	4	302	132	1768	1752	1991	1990	1808
1043	196	332	144	1769	1753	1992	1991	1809
1044	27	3	157	1770	1754	1993	1992	1810
1045	218	33	169	1771	1755	1994	1993	1811
1046	50	63	181	1772	1756	1995	1994	1812
1047	241	94	193	1773	1757	1996	1995	1813
1048	73	124	206	1774	1758	1997	1996	1814
1049	264	154	218	1775	1759	1998	1997	1815
1050	95	185	230	1776	1760	1999	1998	1816
1051	287	215	242	1777	1761	1656	1999	1817
1052	118	245	254	1778	1762	1657	1765	1818
1053	310	276	267	1779	1763	1658	1766	1819
1054	141	306	279	1780	1764	1659	1767	1820
1055	333	337	291	1781	1765	1660	1768	1821
1056	164	7	303	1782	1766	1661	1769	1822
1057	355	37	316	1783	1767	1662	1770	1823
1058	187	68	328	1784	1768	1663	1771	1824
1059	18	98	340	1785	1769	1664	1772	1825
1060	210	128	352	1786	1770	1665	1773	1826
1061	41	159	4	1787	1771	1666	1774	1827
1062	232	189	17	1788	1772	1667	1775	1828
1063	64	219	29	1789	1773	1668	1776	1829
1064	255	250	41	1790	1774	1669	1777	1830
1065	87	280	53	1791	1775	1670	1778	1831
1066	278	310	65	1792	1776	1671	1779	1832
1067	109	341	78	1793	1777	1672	1780	1833
1068	301	11	90	1794	1778	1673	1781	1834
1069	132	41	102	1795	1779	1674	1782	1835
1070	324	72	114	1796	1780	1675	1783	1836
1071	155	102	127	1797	1781	1676	1784	1837
1072	346	132	139	1798	1782	1677	1785	1838
1073	178	163	151	1799	1783	1678	1786	1839
1074	9	193	163	1800	1784	1679	1787	1840
1075	201	223	175	1801	1785	1680	1788	1841
1076	32	254	188	1802	1786	1681	1789	1842
1077	223	284	200	1803	1787	1682	1790	1843
1078	55	314	212	1804	1788	1683	1791	1844
1079	246	345	224	1805	1789	1684	1792	1845
1080	78	15	237	1806	1790	1685	1793	1846
1081	269	46	249	1807	1791	1686	1794	1847
1082	100	76	261	1808	1792	1687	1795	1848
1083	292	106	273	1809	1793	1688	1796	1849
1084	123	137	285	1810	1794	1689	1797	1850
1085	315	167	298	1811	1795	1690	1798	1851
1086	146	197	310	1812	1796	1691	1799	1852
1087	337	228	322	1813	1797	1692	1800	1853
1088	169	258	334	1814	1798	1693	1801	1854
1089	0	288	347	1815	1799	1694	1802	1855
1090	192	319	359	1816	1800	1695	1803	1856
1091	23	349	11	1817	1801	1696	1804	1857
1092	215	19	23	1818	1802	1697	1805	1858
1093	46	50	35	1819	1803	1698	1806	1859
1094	237	80	48	1820	1804	1699	1807	1860
1095	69	110	60	1821	1805	1700	1808	1861
1096	260	141	72	1822	1806	1701	1809	1862
1097	92	171	84	1823	1807	1702	1810	1863
1098	283	201	96	1824	1808	1703	1811	1864
1099	114	232	109	1825	1809	1704	1812	1865
1100	306	262	121	1826	1810	1705	1813	1866
1101	137	292	133	1827	1811	1706	1814	1867
1102	329	323	145	1828	1812	1707	1815	1868
1103	160	353	158	1829	1813	1708	1816	1869
1104	351	24	170	1830	1814	1709	1817	1870

Years ; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Mero.	Jup.	Ven.	Sat.
	Degrees.			A.D.	A.D.	A.D.	A.D.	A.D.
1105	183	54	182	1831	1815	1710	1818	1871
1106	14	84	194	1832	1816	1711	1819	1872
1107	206	115	206	1833	1817	1712	1820	1873
1108	37	145	219	1834	1818	1713	1821	1874
1109	228	175	231	1835	1819	1714	1822	1875
1110	60	206	243	1836	1820	1715	1823	1876
1111	251	236	255	1837	1821	1716	1824	1877
1112	83	6	268	1838	1822	1717	1825	1878
1113	274	297	280	1839	1823	1718	1826	1879
1114	105	327	292	1840	1824	1719	1827	1880
1115	297	357	304	1841	1825	1720	1828	1881
1116	128	28	316	1842	1826	1721	1829	1882
1117	320	58	329	1843	1827	1722	1830	1883
1118	151	88	341	1844	1828	1723	1831	1884
1119	342	119	353	1845	1829	1724	1832	1885
1120	174	149	5	1846	1830	1725	1833	1886
1121	5	179	18	1847	1831	1726	1834	1887
1122	197	210	30	1848	1832	1727	1835	1888
1123	28	240	42	1849	1833	1728	1836	1889
1124	219	270	54	1850	1834	1729	1837	1890
1125	51	301	66	1851	1835	1730	1838	1891
1126	242	331	79	1852	1836	1731	1839	1892
1127	74	2	91	1853	1837	1732	1840	1893
1128	265	32	103	1854	1838	1733	1841	1894
1129	97	62	115	1855	1839	1734	1842	1895
1130	288	93	127	1856	1840	1735	1843	1896
1131	119	123	140	1857	1841	1736	1844	1897
1132	311	153	152	1858	1842	1737	1845	1898
1133	142	184	164	1859	1843	1738	1846	1899
1134	334	214	176	1860	1844	1739	1847	1900
1135	165	244	189	1861	1845	1740	1848	1901
1136	356	275	201	1862	1846	1741	1849	1902
1137	188	305	213	1863	1847	1742	1850	1903
1138	19	335	225	1864	1848	1743	1851	1904
1139	211	6	237	1865	1849	1744	1852	1905
1140	42	36	250	1866	1850	1745	1853	1906
1141	233	66	262	1867	1851	1746	1854	1907
1142	65	97	274	1868	1852	1747	1855	1908
1143	256	127	286	1869	1853	1748	1856	1909
1144	88	157	299	1870	1854	1749	1857	1910
1145	279	188	311	1871	1855	1750	1858	1911
1146	110	218	323	1872	1856	1751	1859	1912
1147	302	248	335	1873	1857	1752	1860	1913
1148	133	279	347	1874	1858	1753	1861	1914
1149	325	309	0	1875	1859	1754	1862	1915
1150	156	340	12	1876	1860	1755	1863	1916
1151	347	10	24	1877	1861	1756	1864	1917
1152	179	40	36	1878	1862	1757	1865	1918
1153	10	71	49	1879	1863	1758	1866	1919
1154	202	101	61	1880	1864	1759	1867	1920
1155	33	131	73	1881	1865	1760	1868	1921
1156	224	162	85	1882	1866	1761	1869	1922
1157	56	192	97	1883	1867	1762	1870	1923
1158	247	221	110	1884	1868	1763	1871	1924
1159	79	253	122	1885	1869	1764	1872	1925
1160	270	283	134	1886	1870	1765	1873	1926
1161	101	313	146	1887	1871	1766	1874	1927
1162	292	344	159	1888	1872	1767	1875	1928
1163	124	14	171	1889	1873	1768	1876	1929
1164	316	44	183	1890	1874	1769	1877	1930
1165	147	75	195	1891	1875	1770	1878	1931
1166	339	105	207	1892	1876	1771	1879	1932
1167	170	135	220	1893	1877	1772	1880	1933
1168	1	166	232	1894	1878	1773	1881	1934
1169	193	196	244	1895	1879	1774	1882	1935
1170	24	226	256	1896	1880	1775	1883	1936
1171	216	257	268	1897	1881	1776	1884	1937
1172	47	287	281	1898	1882	1777	1885	1938
1173	238	317	293	1899	1883	1778	1886	1939
1174	70	348	305	1900	1884	1779	1887	1940
1175	261	18	317	1901	1885	1780	1888	1941
1176	93	49	330	1902	1886	1781	1889	1942
1177	284	79	342	1903	1887	1782	1890	1943
1178	115	109	354	1904	1888	1783	1891	1944
1179	307	140	6	1905	1889	1784	1892	1945
1180	138	170	18	1906	1890	1785	1893	1946
1181	330	200	31	1907	1891	1786	1894	1947
1182	161	231	43	1908	1892	1787	1895	1948
1183	352	261	55	1909	1893	1788	1896	1949
1184	184	291	67	1910	1894	1789	1897	1950

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Ven.	Sat.
	Degrees.			A.D.	A.D.	A.D.	A.D.	A.D.
1185	15	322	80	1911	1895	1790	1898	1951
1186	207	352	92	1912	1896	1791	1899	1952
1187	38	22	104	1913	1897	1792	1900	1953
1188	229	53	116	1914	1898	1793	1901	1954
1189	61	83	128	1915	1899	1794	1902	1955
1190	252	113	141	1916	1900	1795	1903	1956
1191	84	144	153	1917	1901	1796	1904	1957
1192	275	174	165	1918	1902	1797	1905	1958
1193	106	204	177	1919	1903	1798	1906	1959
1194	298	235	190	1920	1904	1799	1907	1960
1195	129	265	202	1921	1905	1800	1908	1961
1196	321	295	214	1922	1906	1801	1909	1962
1197	152	326	226	1923	1907	1802	1910	1963
1198	343	356	238	1924	1908	1803	1911	1964
1199	175	27	251	1925	1909	1804	1912	1965
1200	6	57	263	1926	1910	1805	1913	1966
1201	198	87	275	1927	1911	1806	1914	1967
1202	29	118	287	1928	1912	1807	1915	1968
1203	220	148	299	1929	1913	1808	1916	1969
1204	52	178	312	1930	1914	1809	1917	1970
1205	243	209	324	1931	1915	1810	1918	1971
1206	75	239	336	1932	1916	1811	1919	1972
1207	266	269	348	1933	1917	1812	1920	1973
1208	98	300	1	1934	1918	1813	1921	1974
1209	289	330	13	1935	1919	1814	1922	1975
1210	120	0	25	1936	1920	1815	1923	1976
1211	312	31	37	1937	1921	1816	1924	1977
1212	143	61	49	1938	1922	1817	1925	1978
1213	335	91	62	1939	1923	1818	1926	1979
1214	166	122	74	1940	1924	1819	1927	1980
1215	357	152	86	1941	1925	1820	1928	1981
1216	189	182	98	1942	1926	1821	1929	1982
1217	20	213	111	1943	1927	1822	1930	1983
1218	212	243	123	1944	1928	1823	1931	1984
1219	43	273	135	1945	1929	1824	1932	1985
1220	234	304	147	1946	1930	1825	1933	1986
1221	66	334	159	1947	1931	1826	1934	1987
1222	257	4	172	1948	1932	1827	1935	1988
1223	89	35	184	1949	1933	1828	1936	1989
1224	280	65	196	1950	1934	1829	1937	1990
1225	111	96	208	1951	1935	1830	1938	1991
1226	303	126	221	1952	1936	1831	1939	1992
1227	134	156	233	1953	1937	1832	1940	1993
1228	326	187	245	1954	1938	1833	1941	1994
1229	157	217	257	1955	1939	1834	1942	1995
1230	348	247	269	1956	1940	1835	1943	1996
1231	180	278	282	1957	1941	1836	1944	1997
1232	11	308	294	1958	1942	1837	1945	1998
1233	203	338	306	1959	1943	1838	1946	1999
1234	34	9	318	1960	1944	1839	1947	1617
1235	225	39	331	1961	1945	1840	1948	1618
1236	57	69	343	1962	1946	1841	1949	1619
1237	248	100	355	1963	1947	1842	1950	1620
1238	80	130	7	1964	1948	1843	1951	1621
1239	271	160	19	1965	1949	1844	1952	1622
1240	102	191	32	1966	1950	1845	1953	1623
1241	293	221	44	1967	1951	1846	1954	1624
1242	125	251	56	1968	1952	1847	1955	1625
1243	317	282	68	1969	1953	1848	1956	1626
1244	148	312	80	1970	1954	1849	1957	1627
1245	340	343	93	1971	1955	1850	1958	1628
1246	171	13	105	1972	1956	1851	1959	1629
1247	2	43	117	1973	1957	1852	1960	1630
1248	194	74	129	1974	1958	1853	1961	1631
1249	25	104	142	1975	1959	1854	1962	1632
1250	217	134	154	1976	1960	1855	1963	1633
1251	48	165	166	1977	1961	1856	1964	1634
1252	239	195	178	1978	1962	1857	1965	1635
1253	71	224	190	1979	1963	1858	1966	1636
1254	262	256	203	1980	1964	1859	1967	1637
1255	94	286	215	1981	1965	1860	1968	1638
1256	285	316	227	1982	1966	1861	1969	1639
1257	116	347	239	1983	1967	1862	1970	1640
1258	308	17	252	1984	1968	1863	1971	1641
1259	139	47	264	1985	1969	1864	1972	1642
1260	331	78	276	1986	1970	1865	1973	1643
1261	162	108	288	1987	1971	1866	1974	1644
1262	353	138	300	1988	1972	1867	1975	1645
1263	185	169	313	1989	1973	1868	1976	1646
1264	16	199	325	1990	1974	1869	1977	1647

Years; also year A.D. if reckoned from 1 B.C.	Mrs.	Jup.	Sat.	Mars.	Mero.	Jup.	Ven.	Sat.
	Degrees.			A.D.	A.D.	A.D.	A.D.	A.D.
1265	208	229	337	1991	1975	1870	1978	1648
1266	39	260	349	1992	1976	1871	1979	1649
1267	230	290	2	1993	1977	1872	1980	1650
1268	62	321	14	1994	1978	1873	1981	1651
1269	253	351	26	1995	1979	1874	1982	1652
1270	85	21	38	1996	1980	1875	1983	1653
1271	276	52	50	1997	1981	1876	1984	1654
1272	107	82	63	1998	1982	1877	1985	1655
1273	299	112	75	1999	1983	1878	1986	1656
1274	130	143	87	1637	1984	1879	1987	1657
1275	322	173	99	1638	1985	1880	1988	1658
1276	153	203	111	1639	1986	1881	1989	1659
1277	344	234	124	1640	1987	1882	1990	1660
1278	176	264	136	1641	1988	1883	1991	1661
1279	7	294	148	1642	1989	1884	1992	1662
1280	199	325	160	1643	1990	1885	1993	1663
1281	30	355	173	1644	1991	1886	1994	1664
1282	221	25	185	1645	1992	1887	1995	1665
1283	53	56	197	1646	1993	1888	1996	1666
1284	244	86	209	1647	1994	1889	1997	1667
1285	76	116	221	1648	1995	1890	1998	1668
1286	267	147	234	1649	1996	1891	1999	1669
1287	99	177	246	1650	1997	1892	1765	1670
1288	290	207	258	1651	1998	1893	1766	1671
1289	121	238	270	1652	1999	1894	1767	1672
1290	313	268	283	1653	1645	1895	1768	1673
1291	144	298	295	1654	1646	1896	1769	1674
1292	336	329	307	1655	1647	1897	1770	1675
1293	167	359	319	1656	1648	1898	1771	1676
1294	358	30	331	1657	1649	1899	1772	1677
1295	190	60	344	1658	1650	1900	1773	1678
1296	21	90	356	1659	1651	1901	1774	1679
1297	213	121	8	1660	1652	1902	1775	1680
1298	44	151	20	1661	1653	1903	1776	1681
1299	235	181	33	1662	1654	1904	1777	1682
1300	67	212	45	1663	1655	1905	1778	1683
1301	258	242	57	1664	1656	1906	1779	1684
1302	90	12	69	1665	1657	1907	1780	1685
1303	281	303	81	1666	1658	1908	1781	1686
1304	112	333	94	1667	1659	1909	1782	1687
1305	304	3	106	1668	1660	1910	1783	1688
1306	135	34	118	1669	1661	1911	1784	1689
1307	327	64	130	1670	1662	1912	1785	1690
1308	158	94	142	1671	1663	1913	1786	1691
1309	349	125	155	1672	1664	1914	1787	1692
1310	181	155	167	1673	1665	1915	1788	1693
1311	12	185	179	1674	1666	1916	1789	1694
1312	204	216	191	1675	1667	1917	1790	1695
1313	35	246	204	1676	1668	1918	1791	1696
1314	226	277	216	1677	1669	1919	1792	1697
1315	58	307	228	1678	1670	1920	1793	1698
1316	249	337	240	1679	1671	1921	1794	1699
1317	81	8	252	1680	1672	1922	1795	1700
1318	272	38	265	1681	1673	1923	1796	1701
1319	104	68	277	1682	1674	1924	1797	1702
1320	294	99	289	1683	1675	1925	1798	1703
1321	126	129	301	1684	1676	1926	1799	1704
1322	318	159	314	1685	1677	1927	1800	1705
1323	149	190	326	1686	1678	1928	1801	1706
1324	341	220	338	1687	1679	1929	1802	1707
1325	172	250	350	1688	1680	1930	1803	1708
1326	3	281	362	1689	1681	1931	1804	1709
1327	195	311	15	1690	1682	1932	1805	1710
1328	26	341	27	1691	1683	1933	1806	1711
1329	218	12	39	1692	1684	1934	1807	1712
1330	49	42	51	1693	1685	1935	1808	1713
1331	240	72	64	1694	1686	1936	1809	1714
1332	72	103	76	1695	1687	1937	1810	1715
1333	263	133	88	1696	1688	1938	1811	1716
1334	95	163	100	1697	1689	1939	1812	1717
1335	286	194	112	1698	1690	1940	1813	1718
1336	117	224	125	1699	1691	1941	1814	1719
1337	309	254	137	1700	1692	1942	1815	1720
1338	140	285	149	1701	1693	1943	1816	1721
1339	332	315	161	1702	1694	1944	1817	1722
1340	163	346	174	1703	1695	1945	1818	1723
1341	354	16	186	1704	1696	1946	1819	1724
1342	186	46	198	1705	1697	1947	1820	1725
1343	17	77	210	1706	1698	1948	1821	1726
1344	209	107	222	1707	1699	1949	1822	1727

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Ven.	Sat.
	Degrees.			A.D.	A.D.	A.D.	A.D.	A.D.
1345	40	137	235	1708	1700	1950	1823	1728
1346	231	168	247	1709	1701	1951	1824	1729
1347	63	198	259	1710	1702	1952	1825	1730
1348	254	227	271	1711	1703	1953	1826	1731
1349	86	259	283	1712	1704	1954	1827	1732
1350	277	289	296	1713	1705	1955	1828	1733
1351	108	319	308	1714	1706	1956	1829	1734
1352	300	350	320	1715	1707	1957	1830	1735
1353	131	20	332	1716	1708	1958	1831	1736
1354	323	50	345	1717	1709	1959	1832	1737
1355	154	81	357	1718	1710	1960	1833	1738
1356	345	111	9	1719	1711	1961	1834	1739
1357	177	141	21	1720	1712	1962	1835	1740
1358	8	172	33	1721	1713	1963	1836	1741
1359	200	202	46	1722	1714	1964	1837	1742
1360	31	232	58	1723	1715	1965	1838	1743
1361	223	263	70	1724	1716	1966	1839	1744
1362	54	293	82	1725	1717	1967	1840	1745
1363	245	324	95	1726	1718	1968	1841	1746
1364	77	354	107	1727	1719	1969	1842	1747
1365	268	24	119	1728	1720	1970	1843	1748
1366	100	55	131	1729	1721	1971	1844	1749
1367	291	85	143	1730	1722	1972	1845	1750
1368	122	115	156	1731	1723	1973	1846	1751
1369	314	146	168	1732	1724	1974	1847	1752
1370	145	176	180	1733	1725	1975	1848	1753
1371	337	206	192	1734	1726	1976	1849	1754
1372	168	237	205	1735	1727	1977	1850	1755
1373	359	267	217	1736	1728	1978	1851	1756
1374	191	297	229	1737	1729	1979	1852	1757
1375	22	328	241	1738	1730	1980	1853	1758
1376	214	358	253	1739	1731	1981	1854	1759
1377	45	28	266	1740	1732	1982	1855	1760
1378	236	59	278	1741	1733	1983	1856	1761
1379	68	89	290	1742	1734	1984	1857	1762
1380	259	119	302	1743	1735	1985	1858	1763
1381	91	150	315	1744	1736	1986	1859	1764
1382	282	180	327	1745	1737	1987	1860	1765
1383	113	210	339	1746	1738	1988	1861	1766
1384	305	241	351	1747	1739	1989	1862	1767
1385	136	271	3	1748	1740	1990	1863	1768
1386	328	302	16	1749	1741	1991	1864	1769
1387	159	332	28	1750	1742	1992	1865	1770
1388	350	2	40	1751	1743	1993	1866	1771
1389	182	33	52	1752	1744	1994	1867	1772
1390	13	63	64	1753	1745	1995	1868	1773
1391	205	93	77	1754	1746	1996	1869	1774
1392	36	124	89	1755	1747	1997	1870	1775
1393	227	154	101	1756	1748	1998	1871	1776
1394	59	184	113	1757	1749	1999	1872	1777
1395	250	215	126	1758	1750	1739	1873	1778
1396	82	245	138	1759	1751	1740	1874	1779
1397	273	15	150	1760	1752	1741	1875	1780
1398	105	306	162	1761	1753	1742	1876	1781
1399	295	336	174	1762	1754	1743	1877	1782
1400	127	6	187	1763	1755	1744	1878	1783
1401	319	37	199	1764	1756	1745	1879	1784
1402	150	67	211	1765	1757	1746	1880	1785
1403	342	97	223	1766	1758	1747	1881	1786
1404	173	128	236	1767	1759	1748	1882	1787
1405	4	158	248	1768	1760	1749	1883	1788
1406	196	188	260	1769	1761	1750	1884	1789
1407	27	219	272	1770	1762	1751	1885	1790
1408	219	249	284	1771	1763	1752	1886	1791
1409	50	280	297	1772	1764	1753	1887	1792
1410	241	310	309	1773	1765	1754	1888	1793
1411	73	340	321	1774	1766	1755	1889	1794
1412	264	11	333	1775	1767	1756	1890	1795
1413	96	41	345	1776	1768	1757	1891	1796
1414	287	71	358	1777	1769	1758	1892	1797
1415	118	102	10	1778	1770	1759	1893	1798
1416	310	132	22	1779	1771	1760	1894	1799
1417	141	162	34	1780	1772	1761	1895	1800
1418	333	193	47	1781	1773	1762	1896	1801
1419	164	223	59	1782	1774	1763	1897	1802
1420	355	253	71	1783	1775	1764	1898	1803
1421	187	284	83	1784	1776	1765	1899	1804
1422	18	314	95	1785	1777	1766	1900	1805
1423	210	344	108	1786	1778	1767	1901	1806
1424	41	15	120	1787	1779	1768	1902	1807

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Ven.	Sat.
	Degrees.			A.D.	A.D.	A.D.	A.D.	A.D.
1425	232	45	132	1788	1780	1769	1903	1808
1426	64	75	144	1789	1781	1770	1904	1809
1427	255	106	157	1790	1782	1771	1905	1810
1428	87	136	169	1791	1783	1772	1906	1811
1429	278	166	181	1792	1784	1773	1907	1812
1430	109	197	193	1793	1785	1774	1908	1813
1431	301	227	205	1794	1786	1775	1909	1814
1432	132	257	218	1795	1787	1776	1910	1815
1433	324	288	230	1796	1788	1777	1911	1816
1434	155	318	242	1797	1789	1778	1912	1817
1435	347	349	254	1798	1790	1779	1913	1818
1436	178	19	267	1799	1791	1780	1914	1819
1437	9	49	279	1800	1792	1781	1915	1820
1438	201	80	291	1801	1793	1782	1916	1821
1439	32	110	303	1802	1794	1783	1917	1822
1440	224	140	315	1803	1795	1784	1918	1823
1441	55	171	328	1804	1796	1785	1919	1824
1442	246	201	340	1805	1797	1786	1920	1825
1443	78	230	352	1806	1798	1787	1921	1826
1444	269	262	4	1807	1799	1788	1922	1827
1445	101	292	17	1808	1800	1789	1923	1828
1446	292	322	29	1809	1801	1790	1924	1829
1447	123	353	41	1810	1802	1791	1925	1830
1448	315	23	53	1811	1803	1792	1926	1831
1449	146	53	65	1812	1804	1793	1927	1832
1450	338	84	78	1813	1805	1794	1928	1833
1451	169	114	90	1814	1806	1795	1929	1834
1452	0	144	102	1815	1807	1796	1930	1835
1453	192	175	114	1816	1808	1797	1931	1836
1454	23	205	126	1817	1809	1798	1932	1837
1455	215	235	139	1818	1810	1799	1933	1838
1456	46	266	151	1819	1811	1800	1934	1839
1457	237	296	163	1820	1812	1801	1935	1840
1458	69	327	175	1821	1813	1802	1936	1841
1459	260	357	188	1822	1814	1803	1937	1842
1460	92	27	200	1823	1815	1804	1938	1843
1461	283	58	212	1824	1816	1805	1939	1844
1462	114	88	224	1825	1817	1806	1940	1845
1463	306	118	236	1826	1818	1807	1941	1846
1464	137	149	249	1827	1819	1808	1942	1847
1465	329	179	261	1828	1820	1809	1943	1848
1466	160	209	273	1829	1821	1810	1944	1849
1467	351	240	285	1830	1822	1811	1945	1850
1468	183	270	298	1831	1823	1812	1946	1851
1469	14	300	310	1832	1824	1813	1947	1852
1470	206	331	322	1833	1825	1814	1948	1853
1471	37	1	334	1834	1826	1815	1949	1854
1472	229	31	346	1835	1827	1816	1950	1855
1473	60	62	359	1836	1828	1817	1951	1856
1474	251	92	11	1837	1829	1818	1952	1857
1475	83	122	23	1838	1830	1819	1953	1858
1476	274	153	35	1839	1831	1820	1954	1859
1477	106	183	48	1840	1832	1821	1955	1860
1478	296	213	60	1841	1833	1822	1956	1861
1479	128	244	72	1842	1834	1823	1957	1862
1480	320	274	84	1843	1835	1824	1958	1863
1481	151	305	96	1844	1836	1825	1959	1864
1482	343	335	109	1845	1837	1826	1960	1865
1483	174	5	121	1846	1838	1827	1961	1866
1484	5	36	133	1847	1839	1828	1962	1867
1485	196	66	145	1848	1840	1829	1963	1868
1486	28	96	157	1849	1841	1830	1964	1869
1487	220	127	170	1850	1842	1831	1965	1870
1488	51	157	182	1851	1843	1832	1966	1871
1489	242	187	194	1852	1844	1833	1967	1872
1490	74	218	206	1853	1845	1834	1968	1873
1491	265	248	219	1854	1846	1835	1969	1874
1492	97	18	231	1855	1847	1836	1970	1875
1493	288	309	243	1856	1848	1837	1971	1876
1494	119	339	255	1857	1849	1838	1972	1877
1495	311	9	267	1858	1850	1839	1973	1878
1496	142	40	280	1859	1851	1840	1974	1879
1497	334	70	292	1860	1852	1841	1975	1880
1498	165	100	304	1861	1853	1842	1976	1881
1499	356	131	316	1862	1854	1843	1977	1882
1500	188	161	329	1863	1855	1844	1978	1883
1501	19	191	341	1864	1856	1845	1979	1884
1502	211	222	353	1865	1857	1846	1980	1885
1503	42	252	5	1866	1858	1847	1981	1886
1504	223	283	17	1867	1859	1848	1982	1887

TABLE V-A—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Ven.	Sat.
	Degrees.			A.D.	A.D.	A.D.	A.D.	A.D.
1505	65	313	30	1868	1860	1849	1983	1888
1506	254	343	42	1869	1861	1850	1984	1889
1507	88	14	54	1870	1862	1851	1985	1890
1508	279	44	66	1871	1863	1852	1986	1891
1509	111	74	79	1872	1864	1853	1987	1892
1510	302	105	91	1873	1865	1854	1988	1893
1511	133	135	103	1874	1866	1855	1989	1894
1512	325	165	116	1875	1867	1856	1990	1895
1513	156	196	127	1876	1868	1857	1991	1896
1514	348	226	140	1877	1869	1858	1992	1897
1515	179	256	152	1878	1870	1859	1993	1898
1516	10	287	164	1879	1871	1860	1994	1899
1517	202	317	176	1880	1872	1861	1995	1900
1518	38	347	188	1881	1873	1862	1996	1901
1519	225	18	201	1882	1874	1863	1997	1902
1520	56	48	213	1883	1875	1864	1998	1903
1521	247	78	225	1884	1876	1865	1999	1904
1522	79	109	237	1885	1877	1866	1992	1905
1523	270	139	250	1886	1878	1867	1993	1906
1524	102	169	262	1887	1879	1868	1994	1907
1525	293	200	274	1888	1880	1869	1995	1908
1526	124	230	286	1889	1881	1870	1996	1909
1527	316	261	298	1890	1882	1871	1997	1910
1528	147	291	311	1891	1883	1872	1998	1911
1529	339	321	323	1892	1884	1873	1999	1912
1530	170	352	335	1893	1885	1874	1765	1913
1531	1	22	347	1894	1886	1875	1766	1914
1532	193	52	0	1895	1887	1876	1767	1915
1533	24	83	12	1896	1888	1877	1768	1916
1534	216	113	24	1897	1889	1878	1769	1917
1535	47	142	36	1898	1890	1879	1770	1918
1536	238	174	48	1899	1891	1880	1771	1919
1537	70	204	61	1900	1892	1881	1772	1920
1538	261	233	73	1901	1893	1882	1773	1921
1539	93	265	85	1902	1894	1883	1774	1922
1540	284	295	97	1903	1895	1884	1775	1923
1541	115	325	110	1904	1896	1885	1776	1924
1542	307	356	122	1905	1897	1886	1777	1925
1543	138	26	134	1906	1898	1887	1778	1926
1544	330	56	146	1907	1899	1888	1779	1927
1545	161	87	158	1908	1900	1889	1780	1928
1546	353	117	171	1909	1901	1890	1781	1929
1547	184	147	183	1910	1902	1891	1782	1930
1548	15	178	195	1911	1903	1892	1783	1931
1549	207	208	207	1912	1904	1893	1784	1932
1550	38	239	220	1913	1905	1894	1785	1933
1551	230	269	232	1914	1906	1895	1786	1934
1552	61	299	244	1915	1907	1896	1787	1935
1553	252	330	256	1916	1908	1897	1788	1936
1554	84	0	268	1917	1909	1898	1789	1937
1555	275	30	281	1918	1910	1899	1790	1938
1556	107	61	293	1919	1911	1900	1791	1939
1557	297	91	305	1920	1912	1901	1792	1940
1558	129	121	317	1921	1913	1902	1793	1941
1559	321	152	329	1922	1914	1903	1794	1942
1560	152	182	342	1923	1915	1904	1795	1943
1561	344	212	354	1924	1916	1905	1796	1944
1562	175	243	6	1925	1917	1906	1797	1945
1563	6	273	18	1926	1918	1907	1798	1946
1564	198	303	31	1927	1919	1908	1799	1947
1565	29	334	43	1928	1920	1909	1800	1948
1566	221	4	55	1929	1921	1910	1801	1949
1567	52	34	67	1930	1922	1911	1802	1950
1568	243	65	79	1931	1923	1912	1803	1951
1569	75	95	92	1932	1924	1913	1804	1952
1570	266	125	104	1933	1925	1914	1805	1953
1571	98	156	116	1934	1926	1915	1806	1954
1572	289	186	128	1935	1927	1916	1807	1955
1573	120	216	141	1936	1928	1917	1808	1956
1574	312	247	153	1937	1929	1918	1809	1957
1575	143	277	165	1938	1930	1919	1810	1958
1576	335	308	177	1939	1931	1920	1811	1959
1577	166	338	189	1940	1932	1921	1812	1960
1578	357	8	202	1941	1933	1922	1813	1961
1579	189	39	214	1942	1934	1923	1814	1962

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Mars.	Merc.	Jup.	Ven.	Sat.
	Degrees.			A.D.	A.D.	A.D.	A.D.	A.D.
1580	20	69	226	1943	1935	1924	1815	1963
1581	212	99	238	1944	1936	1925	1816	1964
1582	43	130	251	1945	1937	1926	1817	1965
1583	234	160	263	1946	1938	1927	1818	1966
1584	66	190	275	1947	1939	1928	1819	1967
1585	257	221	287	1948	1940	1929	1820	1968
1586	89	251	299	1949	1941	1930	1821	1969
1587	280	21	312	1950	1942	1931	1822	1970
1588	112	312	324	1951	1943	1932	1823	1971
1589	303	342	336	1952	1944	1933	1824	1972
1590	134	12	348	1953	1945	1934	1825	1973
1591	326	43	1	1954	1946	1935	1826	1974
1592	157	73	13	1955	1947	1936	1827	1975
1593	349	103	25	1956	1948	1937	1828	1976
1594	180	134	37	1957	1949	1938	1829	1977
1595	11	164	49	1958	1950	1939	1830	1978
1596	203	194	62	1959	1951	1940	1831	1979
1597	34	225	74	1960	1952	1941	1832	1980
1598	226	255	86	1961	1953	1942	1833	1981
1599	57	286	98	1962	1954	1943	1834	1982
1600	248	316	110	1963	1955	1944	1835	1983
1601	80	346	123	1964	1956	1945	1836	1984
1602	271	17	135	1965	1957	1946	1837	1985
1603	103	47	147	1966	1958	1947	1838	1986
1604	294	77	159	1967	1959	1948	1839	1987
1605	125	108	172	1968	1960	1949	1840	1988
1606	317	138	184	1969	1961	1950	1841	1989
1607	148	168	196	1970	1962	1951	1842	1990
1608	340	199	208	1971	1963	1952	1843	1991
1609	171	229	220	1972	1964	1953	1844	1992
1610	2	259	233	1973	1965	1954	1845	1993
1611	194	290	245	1974	1966	1955	1846	1994
1612	25	320	257	1975	1967	1956	1847	1995
1613	217	350	269	1976	1968	1957	1848	1996
1614	48	21	282	1977	1969	1958	1849	1997
1615	239	51	294	1978	1970	1959	1850	1998
1616	71	81	306	1979	1971	1960	1851	1999
1617	262	112	318	1980	1972	1961	1852	
1618	94	142	330	1981	1973	1962	1853	
1619	285	172	343	1982	1974	1963	1854	
1620	117	203	355	1983	1975	1964	1855	
1621	308	233	7	1984	1976	1965	1856	
1622	139	264	19	1985	1977	1966	1857	
1623	331	294	32	1986	1978	1967	1858	
1624	102	324	44	1987	1979	1968	1859	
1625	354	355	56	1988	1980	1969	1860	
1626	185	25	68	1989	1981	1970	1861	
1627	16	55	80	1990	1982	1971	1862	
1628	208	86	93	1991	1983	1972	1863	
1629	39	116	105	1992	1984	1973	1864	
1630	231	146	117	1993	1985	1974	1865	
1631	62	177	129	1994	1986	1975	1866	
1632	253	207	141	1995	1987	1976	1867	
1633	84	336	154	1996	1988	1977	1868	
1634	276	268	166	1997	1989	1978	1869	
1635	108	298	178	1998	1990	1979	1870	
1636	298	328	190	1999	1991	1980	1871	
1637	130	359	203		1992	1981	1872	
1638	322	29	215		1993	1982	1873	
1639	153	59	227		1994	1983	1874	
1640	345	90	239		1995	1984	1875	
1641	176	120	251		1996	1985	1876	
1642	7	150	264		1997	1986	1877	
1643	199	181	276		1998	1987	1878	
1644	30	211	288		1999	1988	1879	
1645	222	241	300			1989	1880	
1646	53	272	313			1990	1881	
1647	244	302	325			1991	1882	
1648	76	333	337			1992	1883	
1649	267	3	349			1993	1884	
1650	99	33	1			1994	1885	
1651	290	64	14			1995	1886	
1652	121	94	26			1996	1887	
1653	313	124	38			1997	1888	
1654	144	155	50			1998	1889	
1655	336	185	63			1999	1890	

See Table V-B.

See Table V-B.

Saturn's actual geocentric places for these years are given in Table V-B

TABLE V-A.—*cont.*

Yearly increase of mean longitude, etc.—*cont.*

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Venus.	Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Venus.	Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Venus.	Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Venus.
	Degrees.					Degrees.					Degrees.					Degrees			
1656	167	215	75	1891	**1684**	126	345	57	1919	**1712**	86	115	39	1947	**1740**	45	244	21	1975
1657	358	246	87	1892	**1685**	318	15	69	1920	**1713**	277	145	51	1948	**1741**	237	275	33	1976
1658	190	276	99	1893	**1686**	149	46	81	1921	**1714**	109	175	63	1949	**1742**	68	305	46	1977
1659	21	306	111	1894	**1687**	341	76	94	1922	**1715**	299	206	76	1950	**1743**	259	336	58	1978
1660	213	337	124	1895	**1688**	172	106	106	1923	**1716**	131	236	88	1951	**1744**	91	6	70	1979
1661	44	7	136	1896	**1689**	3	137	118	1-24	**1717**	323	267	100	1952	**1745**	282	36	82	1980
1662	236	37	148	1897	**1690**	195	167	130	1925	**1718**	154	297	112	1953	**1746**	114	67	94	1981
1663	67	68	160	1898	**1691**	26	197	142	1926	**1719**	346	327	125	1954	**1747**	305	97	107	1982
1664	258	98	172	1899	**1692**	218	228	155	1927	**1720**	177	358	137	1955	**1748**	136	127	119	1983
1665	90	128	185	1900	**1693**	49	258	167	1928	**1721**	8	28	149	1956	**1749**	328	158	131	1984
1666	281	159	197	1901	**1694**	240	289	179	1929	**1722**	200	58	161	1957	**1750**	159	188	143	1985
1667	113	189	209	1902	**1695**	72	319	191	1930	**1723**	31	89	173	1958	**1751**	351	218	156	1986
1668	304	219	221	1903	**1696**	263	349	203	1931	**1724**	223	119	186	1959	**1752**	182	249	168	1987
1669	135	250	234	1904	**1697**	95	20	216	1932	**1725**	54	149	198	1960	**1753**	13	279	180	1988
1670	327	280	246	1905	**1698**	286	50	228	1933	**1726**	245	180	210	1961	**1754**	205	309	192	1989
1671	158	311	258	1906	**1699**	118	80	240	1934	**1727**	77	210	222	1962	**1755**	36	340	204	1990
1672	350	341	270	1907	**1700**	309	111	252	1935	**1728**	268	240	235	1963	**1756**	228	10	217	1991
1673	181	11	282	1908	**1701**	140	141	265	1936	**1729**	100	271	247	1964	**1757**	59	40	229	1992
1674	12	42	295	1909	**1702**	332	171	277	1937	**1730**	291	301	259	1965	**1758**	250	71	241	1993
1675	204	72	307	1910	**1703**	163	202	289	1938	**1731**	122	331	271	1966	**1759**	82	101	253	1994
1676	35	102	319	1911	**1704**	355	232	301	1939	**1732**	314	2	283	1967	**1760**	273	131	266	1995
1677	227	133	331	1912	**1705**	186	262	313	1940	**1733**	145	32	296	1968	**1761**	105	162	278	1996
1678	58	163	344	1913	**1706**	17	293	326	1941	**1734**	337	62	308	1969	**1762**	296	192	290	1997
1679	249	193	356	1914	**1707**	209	323	338	1942	**1735**	168	93	320	1970	**1763**	127	222	302	1998
1680	81	224	8	1915	**1708**	40	353	350	1943	**1736**	0	123	332	1971	**1764**	319	253	314	1999
1681	272	254	20	1916	**1709**	232	24	2	1944	**1737**	191	153	344	1972	**1765**	150	283	327	...
1682	104	284	32	1917	**1710**	63	54	15	1945	**1738**	22	184	357	1973	**1766**	342	314	339	...
1683	295	315	45	1918	**1711**	254	84	27	1946	**1739**	214	214	9	1974					

Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.	Years; also year A.D. if reckoned from 1 B.C.	Mars.	Jup.	Sat.
	Degrees.				Degrees.				Degrees.				Degrees.				Degrees.		
1767	173	344	351	**1815**	0	1	218	**1863**	188	17	84	**1911**	15	34	311	**1959**	203	51	177
1768	4	14	3	**1816**	192	31	230	**1864**	19	48	96	**1912**	207	64	323	**1960**	34	81	189
1769	196	45	15	**1817**	28	61	242	**1865**	211	78	109	**1913**	38	95	335	**1961**	226	111	202
1770	27	75	28	**1818**	215	92	254	**1866**	42	108	121	**1914**	230	125	347	**1962**	57	142	214
1771	219	105	39	**1819**	46	122	266	**1867**	234	139	133	**1915**	61	155	359	**1963**	248	172	226
1772	50	136	52	**1820**	238	152	279	**1868**	65	169	145	**1916**	252	186	12	**1964**	80	202	238
1773	241	166	64	**1821**	69	183	291	**1869**	256	199	157	**1917**	84	216	24	**1965**	271	233	250
1774	73	196	77	**1822**	260	213	303	**1870**	88	230	170	**1918**	275	246	36	**1966**	103	263	263
1775	264	227	89	**1823**	92	342	315	**1871**	279	260	182	**1919**	107	277	48	**1967**	294	293	275
1776	96	257	101	**1824**	283	274	328	**1872**	111	290	194	**1920**	298	307	61	**1968**	126	324	287
1777	287	287	118	**1825**	115	304	340	**1873**	301	321	206	**1921**	129	337	73	**1969**	317	354	299
1778	119	318	125	**1826**	306	334	352	**1874**	133	351	218	**1922**	321	8	85	**1970**	148	24	312
1779	310	348	138	**1827**	137	5	4	**1875**	325	21	231	**1923**	152	38	97	**1971**	340	55	324
1780	141	18	150	**1828**	329	35	16	**1876**	156	52	243	**1924**	344	68	109	**1972**	171	85	336
1781	333	49	162	**1829**	160	65	29	**1877**	348	82	255	**1925**	175	99	122	**1973**	3	115	348
1782	164	79	174	**1830**	352	96	41	**1878**	179	112	267	**1926**	6	129	134	**1974**	194	146	0
1783	356	109	187	**1831**	183	126	53	**1879**	10	143	280	**1927**	198	159	146	**1975**	25	176	13
1784	187	140	199	**1832**	14	156	65	**1880**	202	173	292	**1928**	29	190	158	**1976**	217	207	25
1785	18	170	211	**1833**	206	187	78	**1881**	33	203	304	**1929**	221	220	171	**1977**	48	237	37
1786	210	200	223	**1834**	37	217	90	**1882**	225	234	316	**1930**	52	251	183	**1978**	240	267	49
1787	41	231	235	**1835**	229	248	102	**1883**	56	264	328	**1931**	244	281	195	**1979**	71	298	61
1788	233	261	248	**1836**	60	278	114	**1884**	247	295	341	**1932**	75	311	207	**1980**	262	328	74
1789	64	292	260	**1837**	251	308	126	**1885**	79	325	353	**1933**	266	342	219	**1981**	94	358	86
1790	255	322	272	**1838**	83	339	139	**1886**	270	355	5	**1934**	98	12	232	**1982**	285	28	98
1791	87	352	284	**1839**	274	9	151	**1887**	102	26	17	**1935**	289	42	244	**1983**	117	59	110
1792	278	23	297	**1840**	106	39	163	**1888**	293	56	30	**1936**	121	73	256	**1984**	308	89	123
1793	110	53	309	**1841**	297	70	175	**1889**	124	86	42	**1937**	312	103	268	**1985**	139	120	135
1794	300	83	321	**1842**	128	100	187	**1890**	316	117	54	**1938**	143	133	280	**1986**	331	150	147
1795	132	114	333	**1843**	320	130	200	**1891**	147	147	66	**1939**	335	164	293	**1987**	162	180	159
1796	324	144	345	**1844**	151	161	212	**1892**	339	177	78	**1940**	166	194	305	**1988**	354	211	171
1797	155	174	358	**1845**	343	191	224	**1893**	170	208	91	**1941**	358	224	317	**1989**	185	241	184
1798	347	205	10	**1846**	174	221	236	**1894**	2	238	103	**1942**	189	255	329	**1990**	16	271	196
1799	178	235	22	**1847**	5	252	249	**1895**	193	268	114	**1943**	20	285	342	**1991**	208	302	208
1800	9	265	34	**1848**	197	282	261	**1896**	24	299	127	**1944**	212	315	354	**1992**	39	332	220
1801	201	296	47	**1849**	28	312	273	**1897**	216	329	140	**1945**	43	346	6	**1993**	231	2	233
1802	32	326	59	**1850**	220	343	285	**1898**	47	359	152	**1946**	235	16	18	**1994**	62	33	245
1803	224	356	71	**1851**	51	13	297	**1899**	239	30	164	**1947**	66	46	30	**1995**	253	63	257
1804	55	27	83	**1852**	243	43	310	**1900**	70	60	176	**1948**	257	77	43	**1996**	95	93	269
1805	246	57	95	**1853**	74	74	322	**1901**	261	90	188	**1949**	89	107	55	**1997**	276	124	281
1806	78	87	108	**1854**	265	104	334	**1902**	93	121	201	**1950**	280	137	67	**1998**	108	154	294
1807	269	118	120	**1855**	97	134	346	**1903**	284	151	213	**1951**	112	168	79	**1999**	299	184	306
1808	101	148	132	**1856**	288	165	359	**1904**	116	181	225	**1952**	302	198	92	**2000**	130	215	318
1809	292	178	144	**1857**	120	195	11	**1905**	307	212	237	**1953**	134	229	104	**2001**	332	245	330
1810	128	209	156	**1858**	311	225	23	**1906**	138	242	249	**1954**	326	259	115	**2002**	153	276	343
1811	315	239	169	**1859**	142	256	35	**1907**	330	273	262	**1955**	157	289	128	**2003**	345	308	355
1812	146	270	181	**1860**	334	286	47	**1908**	161	303	274	**1956**	349	320	140	**2004**	176	336	7
1813	338	300	193	**1861**	165	317	60	**1909**	353	333	286	**1957**	180	350	153	**2005**	8	7	19
1814	169	313	205	**1862**	357	347	72	**1910**	184	4	299	**1958**	11	20	165				

TABLE V-B.

Geocentric Places of Planets.

Introductory Note.

Table V-B is the second part of the Perpetual Planetary Almanac. It gives the actual geocentric places of each of the five planets Mars, Mercury, Jupiter, Venus and Saturn for every tenth day in the current cycle, which is three hundred and sixty-three years for Mars (A.D. 1637 to A.D. 1999), three hundred and fifty-five years for Mercury (A.D. 1645 to A.D. 1999), three hundred and forty-four years for Jupiter (A.D. 1656 to A.D. 1999), two hundred and thirty-five years for Venus (A.D. 1765 to A.D. 1999), and three hundred and eighty three years for Saturn (A D. 1617 to A.D. 1999). The corresponding dates by the European calendar are given throughout and by means of these dates the tithi, nakshatra, solar month and day of month, and Muhammadan date can be found from the body of the Ephemeris. It has been shown in section iii of Chapter V of this work, pages 110, etc., that, given the actual movements of any planet for one cycle as above, its place at any moment on any day, past or future, can be ascertained very accurately with the help of Table V-A, or for very remote periods, with the help of the millennial cycles indicated in the explanatory note to Table V-A. Actual examples will be found on pages 118, 119, 123, 124 (section iii of Chapter V), showing how to use Tables V-A and V-B for the calculation of ancient positions of planets, such as those required for the Chinese Era *circa* 2500 B.C., for Rama's horoscope, and for the birth of Christ (according to Kepler), or of conjunctions of planets noticed in more modern times, e. g., the conjunction on 15th September, A.D. 1186.

2. For the years A.D. 1617 to A.D. 1636 inclusive, Table V-B gives the positions of Saturn alone, because the positions of the other planets in any of these years can be found from Table V-A which gives the corresponding year in the current cycle; or they may be found directly by applying a suitable cycle of recurrence. For instance, the successive positions of Mars in A.D. 1620 were, by Table V-A, practically the same as his positions in A.D. 1983 (= A.D. 1620 + 363).

For the years A.D. 1637 to 1644, Table V-B gives the positions of Mars and Saturn alone, and the position of any other planet can be found by applying a suitable cycle of recurrence. For instance, the successive positions of Jupiter in A.D. 1640 were the same as those in A.D. 1984 (=A.D. 1640 + 344).

From A.D. 1656 to A.D. 1764, the Table V-B gives the positions of all the planets except Venus because Venus' cycle is two hundred and thirty-five years and for any year before A.D. 1765 inclusive, Venus' positions can be found from Table V-A. Thus Venus' positions in A.D. 1700 were the same as her positions in A.D. 1935 (=A.D. 1700 + 235), which are given in Table V-B.

For the years A.D. 1765 to A.D. 1999, both inclusive, Table V-B gives the successive positions of all the five planets for every ten days in the year with the corresponding dates of the European calendar.

3. In applying any cycle of recurrence to any planetary position recorded in this Table, care should be taken to see that the day of the Indian solar year is not varied. For instance, suppose we want to find the position of Mercury on 1st January 2500 B.C., we should first of all find out what day of the Indian solar year corresponded to 1st January 2500 B.C. We know from the Eye-table, section **k**, that in 2501 B.C. the Indian solar year began on February 21·09: and from Eye-table, section **q**, that 1st January of 2500 B.C. was the 307th day reckoned from 1st March, 2501 B.C., or the 336th day reckoned from 1st February, 2501 B.C. (remembering that 2501 B.C. was a leap year). Reckoned from 21st February the 1st January 2500 B.C. was therefore the 316th complete day (= 336 − 20). Now, to find the year in Table V-B when Mercury had the same successive positions as in 2500 B.C. (or A.D. *minus* 2499), we apply one of the major cycles given at the beginning of Table V-A and proceed thus: 4214 years *minus* 2499 = A.D. 1715. Mercury, on 1st January 2500 B.C., had the same place as on the 316th complete day of the Indian solar year A.D. 1715 − 16, i.e., by Table V-B) 321·8°.

4. It will not do in this case to take Mercury's position on 1st January, A.D. 1715 according to Table V-B because though the successive positions of Mercury in 2501 B.C. were practically the same as his positions in A.D. 1715–16, still 1st January 2500 B.C. was a different day in the Indian solar year 2501 B.C. being then the 316th complete day, as we have seen, from what it was in A.D. 1715–16, when, as we may see from Table V-B, it was the 278th complete day.

5. Table V-B gives the planetary positions for every tenth complete day in each Indian solar year. For intermediate days proportional parts should be taken. For instance, in the example last given, we required to know the place of Mercury on the 316th complete day of the Indian solar year A.D. 1715. Table V-B gives the following places :—

A.D. 1715–16	310th complete day.	Place of Mercury		312·3°
,,	320th ,,	,,	,,	328·2°
			Difference :	15·9°

For 10 days Mercury's place advances by 15·9°
∴ For 1 day ,, ,, 1·59°
∴ For 6 days ,, ,, 6×1·59°
= 9·54° or 9·5° nearly.

We conclude that Mercury's place for 316 complete days of Indian solar year A.D. 1715–16 was 312·3+9·5 = 321·8°.

6. Table V-B gives the places of planets on 0 day, on 10th complete day, on 20th complete day, etc. The 0 day is always the day of commencement of the Indian solar year which is marked (1) in the head lines of the body of the Ephemeris for every year from A.D. 700 to A.D. 1950 by Ārya as well as by Sūrya Siddhānta ; (2) in Table II for every year from A.D. 0 to A.D. 2000 by Sūrya Siddhānta ; and (3) for all Siddhāntas in their respective Eye-tables, sections **k** and **n**.

7. Taking again the last example, the 0 day of A.D. 1715 was by Table II or by "Ephemeris, Vol. VII," March 29·75. The 10th complete day would be March 39·75, i.e., April 8·75 ; the 20th complete day, April 18·75 ; and so on. The 316th complete day of A.D. 1715 was by Table V-B (vide entries against A.D. 1715), 2nd February + 6·75 = February 8·75 ; whereas the 316th complete day of 2500 B.C. was January 1·09, because the year 2501 B.C. began on February 21·09 (see paragraph 3 *supra*). We conclude that the position of Mercury on January 1·09, 2500 B.C. (i.e., at two hours after mean sunrise on 1st January 2500 B.C.) was the same as its position on February 7·75, i.e., at midnight between February 7 and February 8, A.D. 1716. The position was, as we have found already, 321·8°.

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle.

Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date.*		Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
Sat.	1617	22·0	23·3	24·6	26·0	27·3	28·6	30·0	31·2	32·4	33·5	34·4	35·2	35·9	36·2	36·5	36·9	36·6	36·4
	1618	34·4	35·7	37·0	38·4	39·7	41·0	42·4	43·7	45·0	46·2	47·3	48·4	49·6	50·1	50·5	51·0	51·1	51·0
	1619	47·3	48·7	49·9	51·1	52·4	53·7	55·0	56·3	57·7	59·0	60·3	61·4	62·7	63·4	64·3	65·1	65·4	65·8
	1620	60·5	61·5	62·7	63·7	65·0	66·3	67·6	68·9	70·3	71·7	73·0	74·3	75·5	76·5	77·5	78·5	79·1	79·6
	1621	78·8	74·7	75·6	76·5	77·6	78·9	80·1	81·4	82·8	84·1	85·4	86·7	88·2	89·2	90·3	91·5	92·4	93·2
	1622	87·3	88·0	88·7	89·3	90·4	91·4	92·6	93·7	95·1	96·3	97·7	98·9	100·3	101·6	102·9	104·1	105·1	106·2
	1623	101·1	101·5	101·9	102·3	103·1	104·0	104·9	106·0	107·2	108·5	109·7	111·0	112·3	113·6	114·9	116·2	117·3	118·4
	1624	115·0	115·1	115·2	115·3	116·0	116·7	117·3	118·4	119·4	120·4	121·7	123·0	124·2	125·5	126·8	128·1	129·3	130·5
	1625	128·9	128·7	128·5	128·4	128·8	129·1	129·6	130·5	131·4	132·2	133·4	134·5	134·7	137·0	138·4	139·5	140·7	142·0
	1626	142·6	142·2	141·8	141·5	141·6	141·8	141·9	142·6	143·3	143·9	144·9	145·9	147·0	148·2	149·4	150·7	152·0	153·3
	1627	156·2	155·6	155·0	154·4	154·2	154·2	154·1	154·6	155·0	155·4	156·3	157·2	158·1	159·2	160·3	161·4	162·7	164·0
	1628	169·4	168·7	168·0	167·3	167·0	166·7	166·4	166·6	166·8	166·9	167·7	168·5	169·2	170·2	171·3	172·3	173·5	174·7
	1629	182·8	181·5	180·7	180·0	179·5	179·0	178·5	178·5	178·5	178·4	178·9	179·4	180·0	180·9	181·8	182·7	183·8	185·0
	1630	194·9	194·1	193·3	192·5	191·9	191·3	190·6	190·4	190·2	189·8	190·2	190·5	190·8	191·6	192·4	193·1	194·2	195·2
Eng. date.		Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
	1631	207·1	206·3	205·5	204·8	204·1	203·1	202·6	202·2	201·8	201·4	201·4	201·5	201·7	202·3	202·9	203·4	204·3	205·2
Eng. date.		Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
	1632	218·9	218·2	217·5	216·8	216·0	215·2	214·5	213·9	213·3	212·8	212·6	212·6	212·5	212·9	213·3	213·8	214·6	215·5
	1633	230·4	229·9	229·3	228·7	227·9	227·1	226·4	225·7	225·0	224·0	224·0	223·7	223·5	223·7	223·9	224·2	224·9	225·5
	1634	241·8	241·4	241·0	240·6	239·9	239·2	238·4	236·6	236·9	236·1	235·6	235·1	234·7	234·7	234·8	234·8	235·4	235·9
Eng. date.		Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
	1635	252·7	252·5	252·3	252·1	251·4	250·8	250·2	249·5	248·7	247·9	247·3	246·6	246·0	245·8	245·7	245·6	246·0	246·4
Eng. date.		Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
	1636	263·9	263·8	263·7	263·7	263·2	262·7	262·1	261·3	260·5	259·8	259·1	258·4	257·7	257·4	257·0	256·6	256·8	257·0
	1637 Mars	21·4	28·6	35·7	42·8	49·7	56·6	63·4	70·1	76·9	83·4	90·1	96·5	103·0	109·5	115·9	122·2	128·5	134·7
	Sat.	274·6	274·8	275·0	275·2	274·8	274·5	274·2	273·4	272·6	271·9	271·2	270·5	269·7	269·2	268·7	268·1	268·0	268·1
	1638 Mars	240·5	243·1	244·5	245·1	244·9	243·5	240·4	238·2	235·9	234·5	234·1	234·9	237·5	240·6	244·8	249·5	254·9	260·4
	Sat.	285·5	285·8	286·1	286·6	286·4	286·2	286·1	285·5	284·9	284·3	283·5	282·7	282·0	281·3	280·6	280·0	279·8	279·6
Eng. date.		Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1639	Mars	36·1	42·8	49·6	56·3	63·0	69·7	76·2	82·8	89·2	95·8	102·3	108·5	115·1	121·4	127·8	134·1	140·5	146·9
	Sat.	296·3	296·9	297·5	298·0	298·1	298·2	298·3	297·8	297·3	296·9	296·1	295·4	295·6	293·8	293·1	292·4	292·0	291·6
Eng. date.		Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1640	Mars	270·2	276·1	281·9	287·6	292·9	298·1	302·5	306·6	309·9	312·4	313·8	313·3	312·2	309·9	307·4	305·4	304·7	304·9
	Sat.	307·3	308·0	308·7	309·5	309·9	310·2	310·4	310·1	309·8	309·6	309·0	308·4	307·7	306·9	306·1	305·2	304·6	304·1
	1641 Mars	50·7	57·1	63·5	69·9	76·1	82·5	88·9	95·0	101·5	107·9	114·2	120·6	126·6	133·3	139·7	145·9	152·4	158·7
	Sat.	318·3	319·2	320·1	321·1	321·6	322·2	322·7	322·6	322·5	322·5	322·0	321·5	321·0	320·2	319·4	318·6	317·9	317·2
	1642 Mars	291·8	299·0	306·1	313·4	320·5	327·4	334·4	341·0	347·6	353·9	359·8	5·4	10·6	15·3	19·2	22·3	23·9	24·5
	Sat.	329·4	330·5	331·6	332·7	333·4	334·1	334·8	335·0	335·3	335·5	335·2	334·9	334·5	333·8	334·0	332·3	331·5	330·7
Eng. date.		Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1643	Mars	65·7	71·6	77·4	83·3	89·4	95·4	101·5	107·6	113·7	119·9	126·3	132·4	138·9	145·1	151·6	158·1	164·4	171·1
	Sat.	340·7	341·9	343·1	344·3	345·2	346·1	347·1	347·6	348·2	348·6	348·5	348·4	348·3	347·7	347·2	346·6	345·8	345·0
Eng. date.		Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1644	Mars	310·7	318·5	326·0	333·7	341·2	348·8	355·9	3·3	10·7	17·6	24·5	31·2	37·5	43·7	49·7	55·2	59·6	65·1
	Sat.	352·4	353·7	355·0	356·3	357·4	358·5	359·5	0·2	0·9	1·7	1·9	2·1	2·2	1·8	1·5	1·1	0·3	359·5
	1645 Mars	82·1	87·2	92·3	97·7	103·2	108·8	114·7	120·5	126·5	132·5	138·7	144·9	151·2	157·6	164·0	170·4	176·9	183·6
	Merc.	338·1	355·8	14·3	33·4	51·8	68·3	80·6	85·8	80·9	74·9	78·5	89·9	105·2	122·8	140·8	158·8	175·4	189·5
	Sat.	4·3	5·6	6·9	8·2	9·4	10·6	11·8	12·7	13·6	14·6	15·1	15·5	16·0	15·9	15·8	15·7	15·1	14·5
	1646 Mars	328·2	336·0	343·7	351·4	359·0	6·6	14·0	21·3	28·6	35·8	42·7	49·5	56·1	62·7	69·1	75·1	81·2	86·9
	Merc.	351·9	10·8	29·1	46·1	59·8	66·2	63·5	56·6	58·2	69·0	83·5	100·8	119·1	137·6	154·5	169·7	180·7	183·1
	Sat.	16·4	17·7	19·0	20·4	21·7	23·0	24·3	25·4	26·5	27·6	28·3	29·0	29·7	29·9	30·2	30·3	29·9	29·5
Eng. date.		Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1647	Mars	102·4	105·6	109·5	113·9	118·5	123·7	129·4	134·6	140·2	145·9	152·1	158·0	164·4	170·6	177·1	183·6	190·3	197·2
	Merc.	6·4	23·6	38·0	46·3	45·4	38·2	37·9	46·8	61·3	78·6	97·1	115·4	133·4	149·3	161·6	166·9	162·8	156·0
	Sat.	28·7	30·0	31·3	32·5	33·9	35·3	36·7	37·9	39·1	40·4	41·4	42·3	43·2	43·6	44·0	44·5	44·5	44·4

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

* Note that citations in European writers between 5th October A.D. 1582 and 13th September A.D. 1752 may differ by 10 or 11 days Russia, the NEW STYLE was introduced in A.D. 1582 by a bull of Pope Gregory XIII, by which the day following 4th October 1582, was declared Great Britain and its dependencies by an Act of Parliament in A.D. 1752 which declared the day following 2 September A.D. 1752 to be the work gives only English dates, but the reader will remember that, e.g., a continental writer citing 15 October A.D. 1582 has in view the day

V-B.

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D.1999; Saturn, A.D. 1617—A.D. 1999.

180	190	200	210	220	230	240	250	260	270		280	290	300	310	320	330	340	350	360
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
35·9	35·3	34·6	33·8	33·0	32·2	31·3	30·7	30·1	29·5	**1618**	29·5	29·4	29·3	29·9	30·4	30·9	31·9	32·8	33·8
51·0	50·4	49·9	49·4	48·6	47·8	46·9	46·2	45·4	44·6	**1619**	44·3	44·0	43·6	43·9	44·1	44·4	46·1	45·9	46·7
																	Mr 2	Mr 12	Mr 22
65·9	65·7	65·4	65·0	64·3	63·6	62·9	62·0	61·2	60·3	**1620**	59·7	59·1	58·5	58·5	58·4	58·3	58·9	59·5	60·0
																	Mr 3	Mr 13	Mr 23
80·1	80·1	80·1	80·1	79·5	78·9	78·4	77·5	76·7	75·9	**1621**	75·1	74·4	73·6	73·3	73·0	72·7	72·9	73·2	73·5
93·9	94·1	94·3	94·6	94·4	94·1	93·7	92·9	92·1	91·4	**1622**	90·7	89·8	88·9	88·4	87·9	87·3	87·3	87·2	87·1
107·0	107·5	108·1	108·5	108·5	108·4	108·4	107·9	107·3	106·6	**1623**	105·8	105·0	104·1	103·4	102·7	102·0	101·7	101·4	101·0
																	Mr 2	Mr 12	Mr 22
119·6	120·3	121·0	121·7	122·0	122·2	122·4	122·0	121·7	121·4	**1624**	120·7	120·0	119·2	118·4	117·6	116·7	116·2	115·7	115·1
																	Mr 3	Mr 13	Mr 23
131·6	132·6	133·5	134·4	134·9	135·4	135·8	135·7	135·7	135·5	**1625**	134·8	134·3	132·6	132·8	132·0	131·2	130·5	129·8	129·1
143·3	144·3	145·4	146·4	147·5	147·8	148·4	148·5	148·6	148·8	**1626**	148·4	148·0	147·6	146·8	146·0	145·3	144·5	143·7	142·9
154·5	155·6	157·6	157·8	158·6	159·4	160·3	160·7	161·1	161·4	**1627**	161·2	161·1	160·8	160·2	159·6	159·0	158·2	157·4	156·5
																	Mr 2	Mr 12	Mr 22
165·2	166·4	167·6	168·7	169·7	170·7	171·7	172·3	172·7	173·3	**1628**	173·4	173·5	173·5	173·0	172·6	172·1	171·3	170·7	169·8
																	Mr 3	Mr 13	Mr 23
175·8	177·0	178·2	179·5	180·5	181·6	182·7	183·4	184·1	184·9	**1629**	185·1	185·4	185·5	185·3	185·0	184·7	184·1	183·3	182·7
186·2	187·4	188·6	189·8	190·9	192·0	193·1	193·9	194·8	195·7	**1630**	196·2	196·7	197·1	197·0	196·9	196·9	196·3	195·7	195·2
196·3	197·5	198·7	199·8	201·0	202·2	203·3	204·3	205·3	206·2	**1631**	206·9	207·5	208·1	208·3	208·5	208·5	208·1	207·8	207·3
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 3	Mr 13	Mr 23
206·2	207·5	208·6	209·7	210·9	212·1	213·3	214·3	215·5	216·4	**1632**	217·2	217·9	218·7	219·0	219·4	219·7	219·6	219·5	219·1
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
216·4	217·5	218·5	219·6	220·9	222·2	223·4	224·5	225·6	226·7	**1633**	227·5	228·3	229·2	229·6	230·1	230·5	230·4	230·4	230·4
226·2	227·2	228·2	229·3	230·5	231·7	232·8	233·9	235·1	236·2	**1634**	237·2	238·2	239·5	239·8	240·5	241·2	241·4	241·6	241·7
236·4	237·3	238·2	239·1	240·2	241·3	242·5	243·7	244·9	246·0	**1635**	247·1	248·1	249·2	250·0	250·9	251·7	252·1	252·5	252·9
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 3	Mr 13	Mr 23
246·7	247·5	248·3	249·0	250·1	251·2	252·3	253·5	254·7	255·8	**1636**	256·9	258·0	259·1	260·1	261·0	262·0	262·5	263·1	263·7
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
257·1	257·8	258·4	259·1	260·1	261·1	262·1	263·3	264·5	265·6	**1637**	266·8	268·0	269·1	270·1	271·1	272·2	273·0	273·7	274·4
																	Mr 3	Mr 13	Mr 23
141·0	147·2	153·4	159·4	165·5	171·6	177·5	183·3	189·3	195·0	**1638**	200·8	206·2	211·5	216·9	221·9	226·8	231·2	235·2	238·9
268·0	268·5	269·0	269·5	270·4	271·3	272·2	273·3	274·3	275·4		276·6	277·8	278·9	280·0	281·2	282·3	283·2	284·1	285·6
266·5	272·9	279·4	286·3	293·3	300·2	307·4	314·5	321·7	328·9	**1639**	336·1	343·4	350·5	357·3	4·6	11·6	18·7	25·5	32·4
279·3	279·5	279·8	280·2	281·0	281·9	282·5	283·6	284·7	285·7		286·9	288·1	289·4	290·6	291·8	292·9	293·9	294·9	295·8
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 3	Mr 13	Mr 23
153·2	159·5	165·9	172·1	178·5	184·8	191·1	197·5	203·9	210·1	**1640**	216·6	222·9	229·2	235·7	242·0	248·2	254·6	260·8	267·0
291·1	291·2	291·3	291·3	291·9	292·6	293·2	294·2	295·2	296·1		297·3	298·5	299·6	300·8	302·0	303·3	304·4	305·5	306·7
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
306·6	309·3	313·1	317·2	322·1	327·3	332·6	338·4	344·3	350·4	**1641**	356·6	2·9	9·1	15·5	21·7	28·2	34·5	41·0	47·3
303·7	303·5	303·3	303·1	303·5	303·8	304·3	305·2	306·1	306·9		308·0	309·1	310·3	311·6	312·9	314·1	315·4	316·6	317·7
165·3	171·7	178·2	184·9	191·4	198·1	204·6	211·3	218·1	224·9	**1642**	231·8	238·8	245·6	252·7	259·6	266·7	273·9	281·0	288·1
316·4	316·1	315·7	315·3	315·5	315·7	316·0	316·6	317·3	318·0		319·1	320·2	321·2	322·4	323·6	324·9	326·2	327·5	328·8
28·7	21·6	19·1	16·1	14·7	13·6	13·3	14·4	16·6	19·4	**1643**	22·6	26·7	31·3	35·7	40·9	46·1	51·5	57·1	62·6
329·9	329·4	328·9	328·3	328·3	328·2	328·2	328·7	329·2	329·7		330·7	331·7	332·6	333·8	335·0	336·2	337·5	338·8	340·1
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 3	Mr 13	Mr 23
177·7	184·2	190·8	197·6	204·4	211·3	218·2	225·3	232·4	239·6	**1644**	246·8	254·1	261·4	268·8	276·3	283·8	291·4	299·0	306·8
344·1	343·4	342·7	341·9	341·6	341·3	341·1	341·4	341·7	342·0		342·7	343·5	344·3	345·4	346·5	347·7	349·0	350·3	351·6
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
69·4	73·0	75·7	77·4	78·4	77·7	75·9	72·8	69·3	65·7	**1645**	63·3	61·9	61·8	62·9	64·9	68·0	71·4	75·5	79·8
358·9	358·0	357·2	356·3	355·8	355·3	354·8	354·8	354·9	354·9		355·5	356·1	356·7	357·7	358·7	359·8	1·0	2·2	3·5
190·4	197·2	204·1	211·1	218·1	225·3	232·5	239·8	247·2	254·7	**1646**	262·1	269·6	277·3	285·1	292·8	300·7	308·5	316·3	324·2
198·3	198·4	190·9	187·8	194·7	207·0	222·7	240·0	257·4	274·4		289·6	300·8	304·9	299·1	293·4	297·3	308·4	324·3	341·9
13·8	13·0	12·2	11·3	10·6	9·9	9·2	9·0	8·7	8·4		8·8	9·2	9·5	10·4	11·2	12·0	13·2	14·4	15·6
92·4	97·4	102·1	106·6	110·0	113·0	115·4	116·4	116·7	115·5	**1647**	113·1	109·8	105·8	102·2	99·4	97·9	97·7	98·8	101·0
177·0	179·8	176·2	187·5	202·5	219·6	236·8	253·9	269·5	282·1		288·0	284·5	277·6	278·6	288·0	302·6	320·0	338·3	356·9
29·0	28·2	27·5	26·8	25·9	25·1	24·3	23·8	23·2	22·7		22·8	22·8	22·9	23·6	24·3	24·9	25·9	27·0	28·0
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 3	Mr 13	Mr 23
204·7	210·8	218·0	225·0	232·3	239·7	247·1	254·7	262·3	270·1	**1648**	278·7	285·6	293·4	301·3	309·2	317·0	325·0	332·8	340·6
157·8	168·0	182·5	198·9	216·3	233·4	249·5	263·0	270·9	269·7		262·3	260·6	268·2	281·7	298·2	316·3	334·6	352·7	8·8
44·2	43·6	43·0	42·3	41·4	40·6	39·7	39·0	38·3	37·6		37·4	37·2	37·0	37·3	37·7	38·0	38·9	39·8	40·7

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Srav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

from the citations of the same days in English writers for the following reason. In all countries in Europe, except the British Isles and to be the 15th October 1582, ten days being dropped, and A.D. 1700 was declared to be not a leap year. Similar changes were introduced into 14th September A.D. 1752, eleven days being dropped. In either case there was no interruption on the week-day reckoning. The present which in England was still called the 5 October 1582, following the old style.

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1648 Mars	...	344·7	352·6	0·1	6·7	15·2	22·6	30·0	37·1	44·4	51·3	58·2	64·9	71·5	78·1	84·7	90·9	97·1	102·9
Merc.	...	16·2	26·4	27·2	20·3	17·6	25·0	39·3	56·2	74·5	93·2	111·4	128·2	142·1	149·3	147·9	140·3	139·7	147·8
Sat.	...	41·4	42·7	44·0	45·2	46·5	47·8	49·2	50·5	51·8	53·1	54·3	55·4	56·5	57·2	57·9	58·6	58·8	58·9
1649 Mars	...	129·4	130·0	131·8	134·2	137·6	141·5	145·9	150·7	155·9	161·3	167·1	172·9	179·0	185·3	191·7	198·3	205·1	211·8
Merc.	...	8·8	3·0	358·2	4·0	16·8	33·3	51·6	70·6	89·5	106·5	121·6	131·3	131·6	124·9	121·7	128·8	141·6	157·6
Sat.	...	54·3	55·5	56·7	57·8	59·1	60·4	61·7	63·1	64·4	65·8	67·1	68·3	69·5	70·4	71·3	72·3	72·7	73·1
1650 Mars	...	0·3	8·1	15·6	22·9	30·2	37·3	44·5	51·6	58·5	65·4	72·1	78·7	85·4	91·8	98·4	104·6	110·8	117·1
Merc.	...	340·0	342·7	355·1	10·7	28·7	47·5	66·6	84·6	100·2	111·7	114·6	108·5	103·7	108·2	121·1	136·5	153·8	171·5
Sat.	...	67·5	68·5	69·5	70·5	71·7	73·0	74·2	74·6	76·9	78·2	79·5	80·8	82·2	83·3	84·4	85·5	86·2	86·9
Eng. date	...	Mr 29	Ap 8	Ap 18	Ap. 28	My. 8	My. 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1651 Mars	...	170·8	167·6	165·7	164·5	164·8	166·3	168·9	172·2	176·1	180·6	185·6	191·0	198·8	202·7	208·9	215·3	222·0	228·9
Merc.	...	333·4	348·5	6·1	25·0	44·0	62·3	78·6	91·3	96·4	91·9	85·8	88·7	100·1	115·3	132·6	150·6	168·3	184·7
Sat.	...	81·2	82·0	82·7	83·4	84·5	85·6	86·8	88·1	89·5	90·8	92·1	93·4	94·8	96·0	97·2	98·4	99·3	100·2
Eng date.	...	Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1652 Mars	...	15·5	22·7	30·0	37·1	44·1	51·2	58·0	64·9	71·7	78·3	85·1	91·7	98·0	104·6	111·0	117·4	123·7	129·7
Merc.	...	343·6	2·1	20·9	39·4	56·5	70·2	77·1	74·9	67·7	68·7	78·4	93·7	110·9	127·1	147·1	164·2	179·2	189·8
Sat.	...	94·8	95·3	95·8	96·3	97·3	98·3	99·2	100·4	101·6	102·9	104·3	105·6	106·9	108·2	109·4	110·7	111·7	112·8
1653 Mars	...	224·2	224·2	222·8	220·7	217·8	214·7	212·6	211·1	211·3	212·3	214·6	218·0	222·0	226·7	231·8	237·5	243·5	249·8
Merc.	...	358·3	15·8	33·9	48·6	57·3	57·0	49·8	48·3	57·5	72·0	88·9	107·1	125·5	143·1	159·0	171·4	176·6	172·3
Sat.	...	108·6	108·8	109·0	109·3	110·1	110·8	111·5	112·6	113·7	114·9	116·2	117·5	118·7	120·0	121·3	122·7	123·8	124·9
1654 Mars	...	30·3	37·4	44·1	50·9	57·7	64·5	71·2	77·8	84·2	90·9	97·4	103·9	110·3	116·7	123·1	129·4	135·7	142·1
Merc.	...	11·7	27·2	37·4	38·3	31·3	28·8	36·2	49·8	66·5	84·5	103·2	121·5	138·2	152·0	158·6	157·7	150·0	149·6
Sat.	...	122·5	122·4	122·3	122·3	122·8	123·4	123·9	124·8	125·7	126·7	127·9	129·1	130·4	131·7	133·0	134·2	135·4	136·6
Eng. date.	...	Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1655 Mars	...	259·9	265·1	269·8	274·1	278·0	281·1	283·2	284·8	285·1	284·0	281·8	279·3	274·2	275·7	275·4	277·0	279·4	283·0
Merc.	...	16·3	19·9	13·8	9·1	14·3	27·4	43·8	62·1	81·1	99·5	116·8	131·5	141·2	142·0	134·8	131·5	138·2	151·3
Sat.	...	136·3	136·0	135·7	135·5	135·7	136·0	136·3	137·1	137·9	138·5	139·6	140·7	141·9	143·1	144·3	145·6	146·9	148·2
Eng. date	...	Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1656 Mars	...	45·0	51·5	58·0	64·6	71·1	77·5	83·9	90·2	96·8	103·1	109·5	115·7	122·1	128·5	134·9	141·4	147·6	154·1
Merc.	...	356·6	350·4	353·5	5·4	21·1	39·1	58·1	76·8	94·7	110·4	128·8	124·9	119·1	114·0	118·6	130·6	146·1	163·3
Jup.	...	17·0	19·6	22·0	24·4	26·6	29·0	31·3	33·8	36·0	37·8	39·9	41·5	43·0	44·4	45·3	46·1	46·4	46·5
Sat.	...	150·0	149·5	149·0	148·4	148·4	148·5	148·5	149·1	149·7	150·1	151·1	152·0	153·0	154·2	155·4	156·6	157·9	159·2
1657 Mars	...	283·9	290·8	297·4	304·3	310·9	317·4	323·7	329·8	335·7	341·3	346·3	350·6	354·1	356·8	358·3	358·5	357·2	354·8
Merc.	...	333·9	343·4	358·6	16·4	35·2	54·2	72·6	89·1	101·9	107·0	102·5	96·5	98·6	110·1	125·0	142·2	160·0	177·6
Jup.	...	44·9	47·1	49·2	51·2	53·2	55·2	58·2	60·5	62·9	65·2	67·5	69·8	71·8	73·5	75·2	76·9	78·3	79·3
Sat.	...	163·4	162·7	162·0	161·4	161·1	160·9	160·7	161·0	161·3	161·6	162·4	163·2	164·0	165·1	166·2	167·3	168·5	169·7
Eng. date	...	Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1658 Mars	...	59·7	65·9	71·9	78·0	84·1	90·3	96·5	102·7	108·9	115·2	121·5	127·8	134·1	140·4	146·8	153·2	159·7	166·2
Merc.	...	336·9	353·9	12·4	31·2	49·8	66·8	80·6	88·2	85·6	78·5	79·3	89·0	102·9	120·7	138·8	156·6	173·0	188·7
Jup.	...	73·3	74·5	76·4	78·0	80·0	82·1	84·0	86·2	88·6	90·9	93·1	95·5	97·7	100·0	102·0	104·3	106·1	107·9
Sat.	...	176·4	175·6	174·9	174·1	173·7	173·3	172·9	173·0	173·1	173·1	173·6	174·2	174·9	175·8	176·8	177·8	179·0	180·2
1659 Mars	...	303·5	311·0	318·6	326·0	333·6	340·9	348·4	355·3	2·4	9·3	15·9	22·2	28·5	34·3	39·9	44·9	49·3	53·3
Merc.	...	349·6	8·5	27·0	44·3	59·1	68·3	68·2	60·9	59·5	67·7	81·9	98·8	116·9	135·2	152·6	168·3	180·7	185·9
Jup.	...	103·1	103·7	104·3	105·3	106·7	107·9	109·8	111·8	113·7	115·8	118·0	119·9	122·1	124·6	126·5	128·8	131·2	133·0
Sat.	...	189·0	188·2	187·4	186·6	186·1	185·6	185·0	184·9	184·8	184·5	184·9	185·3	185·0	185·8	187·4	188·3	189·4	190·5
Eng. date	...	Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1660 Mars	...	75·6	80·9	86·4	92·1	97·8	103·6	109·5	115·5	121·4	127·5	133·7	139·9	146·3	152·6	158·9	165·5	172·0	178·6
Merc.	...	4·5	22·1	37·5	47·9	49·9	42·9	39·6	46·2	70·1	76·6	94·8	113·4	131·4	147·9	161·7	168·9	167·4	160·0
Jup.	...	135·0	134·5	134·2	134·4	134·6	135·4	136·5	137·5	139·0	140·6	142·4	144·4	146·4	148·5	150·6	152·8	155·0	157·2
Sat.	...	201·4	200·6	199·8	199·1	198·4	197·7	197·1	196·8	196·4	196·0	196·2	196·4	196·7	197·4	198·1	198·7	199·7	200·7
1661 Mars	...	321·5	329·3	337·1	344·8	352·3	359·8	7·4	14·7	21·9	28·9	36·0	42·7	49·5	56·0	62·1	68·2	73·9	79·4
Merc.	...	15·2	27·1	30·7	24·4	20·1	25·3	37·7	54·1	72·2	91·0	109·5	126·7	141·6	150·6	151·5	144·0	141·3	148·1
Jup.	...	168·7	167·3	166·4	165·5	164·0	164·6	164·4	164·6	165·6	166·4	167·6	169·1	170·6	172·4	174·3	176·4	178·4	180·6
Sat.	...	213·5	212·8	212·1	211·3	210·5	209·7	209·0	208·5	208·1	207·6	207·6	207·5	207·5	208·0	208·5	209·0	209·9	210·8
Eng. date	...	Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1662 Mars	...	94·0	98·0	102·5	107·3	112·5	117·7	123·3	128·7	134·6	140·7	146·5	152·8	159·1	165·3	171·7	178·3	185·1	191·7
Merc.	...	11·7	8·6	1·4	4·5	15·9	31·6	49·6	68·3	87·5	104·2	120·7	132·3	135·1	129·1	124·0	128·7	140·4	155·6
Jup.	...	202·7	201·5	200·6	198·8	197·7	196·7	195·5	195·0	194·7	194·7	195·0	195·6	196·5	197·6	199·3	200·7	202·4	204·4
Sat.	...	225·1	224·5	223·9	223·3	222·5	221·7	221·0	220·3	219·7	219·0	218·8	218·6	218·5	218·8	219·1	219·4	220·1	220·9
1663 Mars	...	338·4	346·1	353·9	1·6	9·2	16·6	23·9	31·2	38·4	45·5	52·2	59·0	65·9	72·3	78·7	84·9	91·2	97·2
Merc.	...	343·4	344·0	354·0	9·0	26·7	45·6	64·6	82·9	99·3	112·0	117·6	113·3	106·7	109·0	120·0	134·8	151·8	169·5
Jup.	...	236·3	235·5	234·8	234·1	232·8	230·8	230·1	228·4	227·6	226·8	225·3	225·6	225·6	226·0	226·6	227·4	228·7	230·1
Sat.	...	236·5	236·3	236·1	235·1	234·3	233·5	232·8	232·1	231·4	230·6	230·2	229·8	229·4	229·6	229·8	229·9	230·5	231·1

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·6	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260	270		280	290	300	310	320	330	340	350	360
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
108·9	114·7	120·1	125·3	130·2	134·9	139·0	142·6	145·7	147·7	**1649**	148·9	148·7	147·3	144·8	140·9	137·5	134·0	131·0	129·9
162·1	178·3	195·8	212·9	229·5	243·9	253·4	254·9	248·3	244·1		249·0	261·4	277·1	294·6	312·8	330·6	347·4	1·0	8·7
59·0	58·6	58·3	57·8	57·0	56·2	55·4	54·6	53·8	53·0		52·6	52·1	51·6	51·7	51·8	51·8	52·5	53·2	53·9
218·8	225·9	233·1	240·4	247·8	255·4	263·0	270·7	278·5	286·2	**1650**	294·1	302·0	309·9	317·6	325·5	333·4	341·2	348·7	356·6
174·7	192·3	209·4	224·4	235·9	239·5	235·2	228·6	231·1	241·6		256·3	273·1	291·1	308·8	325·8	339·9	349·2	349·3	342·2
73·6	73·5	73·3	73·2	72·5	71·8	71·3	70·4	69·5	68·7		68·0	67·3	66·5	66·3	66·1	66·0	66·4	66·7	67·2
123·1	129·0	134·8	141·5	146·1	151·5	156·8	161·4	166·3	170·7	**1651**	174·4	177·8	180·4	181·8	182·6	181·9	179·8	176·4	172·5
189·1	204·8	217·7	223·9	221·8	213·8	213·4	221·3	236·2	252·3		269·8	287·6	304·6	319·6	329·7	332·1	325·3	321·1	326·3
87·6	87·7	87·8	87·9	87·5	87·1	86·6	85·8	85·0	84·3		83·5	82·7	81·8	81·4	81·0	80·5	80·6	80·6	80·7
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 3	Mr 13	Mr 23
235·9	242·9	250·2	257·4	265·9	272·4	280·0	287·8	295·5	303·2	**1652**	311·0	318·7	326·3	334·1	341·9	349·3	356·8	4·4	11·6
198·8	207·4	207·5	199·8	197·0	203·4	216·4	232·1	249·1	266·7		283·6	299·0	310·6	314·7	309·5	303·4	307·0	318·8	334·3
101·5	101·5	101·8	102·2	102·0	101·9	101·8	101·1	100·4	99·7		98·8	97·9	97·1	96·5	95·9	95·2	95·0	94·8	94·7
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
136·0	142·0	148·2	154·1	160·1	165·9	171·8	177·5	183·1	188·7	**1653**	194·0	198·9	203·9	208·4	212·6	216·5	219·8	222·2	223·8
192·6	186·4	181·1	184·9	196·8	211·8	228·1	246·0	263·1	278·9		291·4	297·5	294·3	287·1	288·0	297·9	312·5	330·0	348·3
113·3	114·4	115·1	115·8	115·9	116·0	116·0	115·4	115·1	114·6		113·8	113·0	112·3	111·5	110·7	109·9	109·5	109·1	108·6
256·4	263·1	270·1	277·1	284·4	291·8	299·1	306·6	313·9	321·4	**1654**	328·8	336·2	343·6	350·9	358·1	5·4	12·4	19·6	26·6
165·6	167·2	177·3	191·5	208·0	225·4	242·5	258·8	272·1	280·2		279·4	271·7	269·9	278·0	291·6	308·0	326·1	344·7	2·8
126·1	126·9	127·7	128·6	129·0	129·3	129·7	129·5	129·3	129·0		128·3	127·6	127·0	126·2	125·5	124·7	124·1	123·5	122·9
148·3	154·7	160·8	166·1	173·3	179·6	185·8	191·9	198·0	204·3	**1655**	210·4	216·6	222·7	228·6	234·6	240·5	246·1	251·8	257·2
157·7	171·5	187·6	205·0	222·3	238·6	253·1	263·0	264·0	257·2		253·3	258·8	270·9	286·5	304·0	322·5	340·4	357·4	11·5
137·9	138·9	139·9	140·9	141·6	142·2	142·6	142·6	142·7	142·7		142·2	141·7	141·2	140·5	139·6	138·8	137·1	137·4	136·4
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 3	Mr 13	Mr 23
287·2	292·0	297·6	303·1	309·2	315·4	321·7	328·5	335·0	341·5	**1656**	348·2	354·9	1·5	8·3	15·0	21·5	28·2	34·8	41·4
167·1	184·2	201·9	218·5	233·7	244·8	248·7	243·6	237·4	240·0		251·0	266·9	282·9	300·8	318·6	335·8	350·2	359·8	0·0
149·4	150·5	151·8	152·7	153·4	154·1	154·9	155·2	155·4	155·7		155·4	155·1	154·9	154·2	153·5	152·7	152·0	151·2	150·4
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
160·5	166·9	173·5	179·7	186·2	192·9	199·5	205·9	212·6	219·1	**1657**	225·8	232·7	239·4	246·0	252·8	259·6	266·5	273·5	280·4
180·7	198·3	214·0	226·6	233·1	230·5	222·8	222·6	231·5	245·5		261·8	279·7	297·2	314·3	329·2	339·8	342·4	335·9	331·8
46·1	45·6	44·6	43·4	42·0	40·1	39·4	38·0	37·1	36·3		36·0	35·8	36·1	36·9	37·9	38·8	40·3	42·0	43·6
160·4	161·5	162·6	163·8	164·7	165·6	166·5	166·9	167·4	167·9		167·8	167·8	167·7	167·1	166·6	166·1	165·3	164·5	163·7
353·2	349·9	348·7	348·5	349·7	351·7	354·5	358·1	2·0	6·5	**1658**	11·3	16·5	21·9	27·4	32·9	38·8	44·8	50·6	56·5
194·2	208·0	216·7	216·1	208·8	205·4	212·9	225·5	241·2	258·5		276·0	293·2	308·7	320·4	324·9	319·6	314·0	316·8	328·6
80·3	80·6	81·0	80·7	80·4	79·5	78·4	77·2	76·0	74·6		73·3	72·3	71·4	70·7	70·7	70·5	70·9	71·7	72·5
171·0	172·2	173·4	174·6	175·6	176·6	177·6	178·2	178·8	179·6		179·8	180·0	180·1	179·7	179·3	179·0	178·2	177·4	176·8
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
198·5	205·4	212·3	219·6	226·8	233·9	241·3	248·8	256·3	263·9	**1659**	240·8	248·1	255·2	262·5	269·7	277·3	284·7	292·1	299·8
171·8	189·3	207·6	223·2	235·9	241·9	239·5	231·6	231·3	240·8		288·2	301·0	307·2	303·8	296·8	297·9	307·9	322·6	339·9
206·5	208·5	210·6	212·9	215·1	217·3	219·5	221·7	223·8	225·9		110·5	109·0	107·8	106·7	105·3	104·3	103·7	103·4	103·2
221·6	222·7	223·7	224·7	225·9	227·1	228·2	229·3	230·4	231·6		192·1	191·4	190·8	191·6	191·4	191·3	190·7	190·1	189·5
																	Mr 3	Mr 13	Mr 23
102·8	108·4	113·7	118·5	123·2	127·2	130·9	133·6	135·6	136·6	**1660**	45·0	46·2	48·4	51·2	54·7	58·5	63·1	67·8	72·8
187·1	203·5	217·2	225·4	225·3	217·8	215·0	221·6	234·6	250·6		289·6	288·7	281·4	279·4	287·4	301·1	317·8	336·1	354·5
231·6	233·4	235·4	237·5	239·4	241·9	244·1	246·3	248·7	250·9		144·3	143·8	142·9	141·8	140·3	139·3	137·7	136·6	135·7
231·7	232·6	233·6	234·6	235·8	237·0	238·1	239·2	240·3	241·5		201·9	202·4	203·0	203·0	203·1	203·2	202·7	202·2	201·7
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
185·2	191·9	198·8	205·7	212·8	219·8	226·7	234·0	241·3	248·7	**1661**	256·0	263·4	271·0	278·6	286·4	294·1	301·9	309·7	317·4
158·6	166·6	180·8	196·8	214·1	231·4	247·9	262·3	272·0	273·4		266·7	262·6	267·6	280·5	296·3	314·2	332·5	350·6	7·5
159·4	161·6	163·6	165·6	167·5	169·1	170·6	172·2	173·2	174·2		174·7	175·1	175·0	174·5	174·1	173·0	171·9	170·6	169·4
201·7	202·9	204·1	205·2	206·4	207·6	208·7	209·7	210·7	211·8		212·4	213·1	213·9	214·2	214·4	214·6	214·4	214·0	213·8
84·6	89·2	93·4	97·0	100·0	102·1	103·0	102·7	101·3	98·4	**1662**	94·5	90·9	87·7	85·2	84·5	84·8	86·4	89·0	92·1
160·7	176·4	193·4	210·9	227·6	242·7	254·2	257·8	252·4	246·5		249·6	260·3	275·2	292·3	310·3	328·6	345·4	0·4	10·1
182·8	185·0	187·1	189·3	191·5	193·6	195·5	197·6	199·3	200·9		202·4	203·3	204·2	204·9	205·3	205·2	204·9	204·4	203·4
211·6	212·7	213·8	215·0	216·2	217·5	218·6	219·7	220·8	221·9		222·8	223·6	224·5	224·9	225·3	225·6	225·7	225·9	225·3
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
198·5	205·4	212·3	219·6	226·8	233·9	241·3	248·8	256·3	263·9	**1663**	271·5	279·3	287·1	294·9	302·8	310·6	318·5	326·5	334·3
171·8	189·3	207·6	223·2	235·9	241·9	239·5	231·6	231·3	240·8		254·7	271·1	288·9	306·7	324·0	339·3	350·3	352·9	346·5
206·5	208·5	210·6	212·9	215·1	217·3	219·5	221·7	223·8	225·9		238·0	229·7	231·3	232·8	234·2	235·1	236·0	236·3	236·3
221·6	222·7	223·7	224·7	225·9	227·1	228·2	229·3	230·4	231·6		232·6	233·6	234·6	235·1	235·7	236·4	236·5	236·6	236·6
																	Mr 3	Mr 13	Mr 23
102·8	108·4	113·7	118·5	123·2	127·2	130·9	133·6	135·6	136·6	**1664**	136·5	135·2	131·9	128·4	124·5	121·0	118·7	117·3	117·1
187·1	203·5	217·2	225·4	225·3	217·8	215·0	221·6	234·6	250·6		267·8	285·6	303·0	318·4	330·4	334·9	330·1	324·0	327·3
231·6	233·4	235·4	237·5	239·4	241·9	244·1	246·3	248·7	250·9		253·1	255·3	257·3	259·3	261·2	263·2	264·8	266·1	267·2
231·7	232·6	233·6	234·6	235·8	237·0	238·1	239·2	240·3	241·5		242·5	243·5	244·6	245·3	246·1	246·9	247·2	247·4	247·7

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Srav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1664	Mars ...	117·8	119·6	122·2	125·5	129·5	134·0	138·9	144·1	149·5	155·1	160·9	166·8	173·1	179·3	185·9	192·4	199·1	206·0
	Merc. ...	332·9	346·8	4·0	22·6	41·5	60·3	77·3	91·2	98·7	96·7	89·5	89·5	99·4	113·6	130·5	148·2	166·0	183·2
	Jup ...	267·6	268·5	268·7	268·6	268·3	267·8	266·8	265·6	264·3	263·0	261·7	260·5	259·4	258·6	258·3	258·0	258·2	258·9
	Sat. ...	248·7	247·4	247·2	246·8	246·1	245·5	244·8	244·1	243·3	242·6	241·9	241·3	241·8	240·7	240·6	240·6	241·0	241·4
1665	Mars ...	354·4	2·0	9·7	17·1	24·4	31·7	39·0	46·1	53·1	60·0	66·9	73·6	80·2	86·8	93·1	99·6	105·7	111·9
	Merc. ...	341·6	359·7	18·7	37·3	55·0	69·8	78·7	79·0	71·7	70·0	79·2	92·2	108·7	125·9	145·1	162·3	178·1	190·2
	Jup. ...	297·2	299·0	300·3	301·6	302·5	302·9	303·1	302·8	302·3	301·7	300·7	299·4	298·1	296·6	295·4	294·3	293·4	292·6
	Sat. ...	258·7	258·6	258·5	258·4	257·8	257·2	256·6	255·8	255·0	254·2	253·6	253·0	252·3	252·1	251·9	251·6	251·8	252·1
Eng. date	...	Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1666	Mars ...	152·0	150·5	150·1	150·6	152·6	155·3	158·7	163·0	167·3	172·4	177·7	183·5	189·3	195·5	201·8	208·4	215·1	222·9
	Merc. ...	356·0	14·7	32·4	47·8	58·5	60·8	54·2	50·8	57·2	70·4	86·9	104·9	123·2	141·2	157·4	171·1	178·5	176·7
	Jup. ...	325·5	327·7	330·0	331·7	333·6	335·2	336·4	337·6	338·3	338·7	339·1	338·6	338·2	337·2	336·0	334·7	333·3	331·9
	Sat. ...	269·7	269·8	269·9	269·9	269·6	269·1	268·7	267·9	267·1	266·4	265·7	265·0	264·2	263·8	263·3	262·9	262·9	263·0
1667	Mars ...	9·8	17·2	24·5	31·6	38·9	45·9	52·8	59·8	66·8	73·4	80·1	86·6	93·3	99·8	106·1	112·4	118·7	125·0
	Merc. ...	10·0	26·0	37·8	42·0	36·5	31·3	36·0	48·5	64·5	82·5	101·1	119·5	136·6	151·2	160·8	161·6	154·3	151·1
	Jup. ...	353·2	355·6	358·0	0·4	2·6	5·0	6·8	8·9	10·6	12·1	13·5	14·4	15·0	15·5	15·3	15·1	14·5	13·4
	Sat. ...	280·5	280·8	281·1	281·4	281·1	280·8	280·6	280·0	279·2	278·5	277·8	277·0	276·3	275·6	275·1	274·5	274·3	274·2
Eng. date	...	Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1668	Mars ...	204·5	201·8	198·5	195·4	192·4	191·1	191·0	192·1	194·2	197·3	201·1	205·6	210·6	215·9	221·8	227·9	234·4	241·0
	Merc. ...	16·7	22·9	18·7	12·5	14·7	26·3	41·9	59·9	78·6	87·2	115·0	130·7	142·1	145·3	139·6	133·9	138·0	149·8
	Jup. ...	21·0	23·4	25·8	28·2	30·6	33·0	35·3	37·7	39·8	41·9	43·8	45·5	47·4	48·6	49·7	50·7	51·1	51·2
	Sat ...	291·4	291·9	292·3	292·8	292·7	292·7	292·7	292·2	291·7	291·3	290·4	289·6	288·6	287·9	287·3	286·7	286·4	286·1
1669	Mars ...	24·6	31·6	38·6	45·6	52·4	59·4	66·2	72·8	79·4	86·0	92·7	99·1	105·5	112·0	118·4	124·8	131·1	137·4
	Merc. ...	1·1	353·8	354·8	4·5	19·6	37·1	55·1	74·1	92·1	109·6	121·3	127·4	123·5	116·9	119·4	129·7	144·6	161·3
	Jup. ...	48·6	50·5	52·6	54·8	57·0	59·4	62·0	64·3	66·4	69·0	71·3	73·2	75·5	77·5	79·1	80·8	82·5	83·6
	Sat. ...	302·2	302·8	303·8	304·2	304·4	304·6	304·8	304·4	304·0	303·7	303·0	302·4	301·6	300·8	300·0	299·2	298·7	298·2
Eng. date	...	Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1670	Mars ...	248·0	251·7	254·7	256·9	258·4	258·6	257·7	255·6	253·2	250·6	248·7	247·2	248·8	250·7	253·7	257·5	262·3	267·4
	Merc. ...	335·2	343·9	357·1	14·5	33·1	52·2	70·7	87·8	101·4	109·3	107·3	100·2	100·1	109·2	123·6	140·2	158·1	175·6
	Jup. ...	77·2	78·5	79·9	81·6	83·5	85·5	87·6	89·8	92·1	94·4	96·6	98·9	101·3	103·2	105·6	107·7	109·7	111·4
	Sat. ...	313·0	313·9	314·8	315·7	316·1	316·5	317·0	316·9	316·6	316·6	316·0	315·4	314·8	314·0	313·2	312·4	311·7	311·0
1671	Mars ...	39·2	45·8	52·6	59·2	65·9	72·4	78·9	85·5	91·9	98·5	104·9	111·2	117·6	123·9	130·6	136·7	143·0	149·4
	Merc. ...	335·3	351·8	9·8	28·9	48·0	65·3	80·3	89·9	90·8	82·9	80·6	88·3	102·0	118·7	136·5	154·4	171·8	187·4
	Jup. ...	107·4	107·8	108·2	109·2	110·4	111·8	113·3	115·1	117·0	118·9	121·3	123·4	125·6	127·6	130·0	132·2	134·2	136·5
	Sat. ...	324·2	325·2	326·3	327·3	328·0	328·6	329·2	329·3	329·4	329·5	329·1	328·7	328·2	327·4	326·9	325·8	325·0	324·2
Eng. date	...	Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1672	Mars ...	275·5	281·6	287·9	294·1	300·0	305·7	311·0	316·0	320·5	324·4	327·6	329·5	330·3	329·2	327·2	324·9	322·4	321·1
	Merc. ...	347·5	6·1	25·0	42·9	58·6	69·7	72·1	65·8	61·5	67·9	80·6	96·8	115·8	133·0	150·9	166·3	180·6	187·8
	Jup. ...	139·7	138·8	138·5	138·3	138·8	139·3	140·2	141·3	142·4	144·1	145·8	147·7	149·5	151·6	153·7	155·9	158·1	160·5
	Sat. ...	335·5	336·6	337·7	338·9	339·8	340·6	341·5	341·8	342·2	342·6	342·4	342·2	341·9	341·2	340·6	340·0	339·2	338·4
1673	Mars ...	54·0	60·3	66·4	72·8	78·9	85·3	91·6	97·8	104·2	110·3	116·8	123·1	129·3	135·7	142·2	148·6	155·0	161·4
	Merc. ...	2·1	20·2	36·4	48·2	53·0	48·3	42·4	46·8	58·7	74·6	92·5	111·1	129·3	146·2	161·6	170·4	171·0	164·2
	Jup. ...	173·3	172·0	170·9	170·1	169·3	168·7	168·7	168·9	169·4	170·2	171·3	172·4	174·1	175·8	177·7	179·4	181·7	183·6
	Sat. ...	347·0	348·2	349·4	350·7	351·8	352·8	353·8	354·4	355·0	355·7	355·7	355·8	355·8	355·4	355·0	354·4	353·6	352·8
Eng. date	...	Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16.	Au 26	S 5	S 15
1674	Mars ...	296·0	303·4	310·8	318·1	325·3	332·4	339·6	346·4	353·4	359·8	6·1	12·1	17·7	23·1	27·6	31·6	34·9	36·9
	Merc. ...	14·3	27·5	33·5	29·9	23·4	25·9	36·9	52·4	70·2	88·9	107·4	125·0	140·5	151·6	154·9	149·2	143·7	147·9
	Jup. ...	207·4	206·2	205·0	203·6	202·4	201·2	200·2	199·3	198·9	198·9	198·8	199·5	200·3	201·4	202·6	204·2	205·9	207·2
	Sat. ...	358·6	359·9	1·2	2·5	3·7	4·9	6·0	6·8	7·7	8·6	8·9	9·2	9·6	9·4	9·1	8·9	8·2	7·5
1675	Mars ...	69·2	74·8	80·5	86·4	92·3	98·3	104·4	110·4	116·5	122·6	128·8	135·1	141·5	147·8	154·2	160·7	167·1	173·7
	Merc. ...	13·8	12·3	5·1	5·1	15·1	29·9	47·6	66·2	85·1	103·4	119·6	132·3	137·9	134·1	127·5	128·8	139·6	153·8
	Jup. ...	240·5	240·4	239·6	239·0	237·8	237·5	235·2	233·7	232·7	231·4	230·7	230·3	229·9	230·1	230·7	231·3	232·5	233·8
	Sat. ...	10·6	11·7	13·2	14·6	15·6	17·2	18·5	19·5	20·5	21·6	22·2	22·8	23·4	23·5	23·5	23·5	23·0	22·6
Eng. date	...	Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1676	Mars ...	314·6	322·2	330·1	337·7	345·4	352·9	0·4	7·5	14·8	21·9	28·6	35·5	42·0	48·3	54·2	60·2	65·7	70·6
	Merc. ...	347·5	345·4	352·9	7·3	24·6	43·1	62·3	80·7	97·9	112·0	119·9	118·1	110·2	110·0	119·3	133·1	149·8	167·4
	Jup. ...	272·0	272·7	273·3	273·4	273·4	272·8	272·0	270·8	269·5	268·1	267·0	265·5	264·4	263·7	262·9	262·7	262·9	263·2
	Sat. ...	23·0	24·3	25·6	26·9	28·2	29·6	31·0	32·2	33·4	34·5	35·4	36·2	36·9	37·3	37·6	38·0	37·7	37·5
1677	Mars ...	85·9	91·0	95·8	101·1	106·4	112·0	117·1	123·4	129·8	135·4	141·4	147·7	153·8	160·3	166·7	173·3	179·8	186·5
	Merc. ...	332·8	345·3	2·1	20·4	39·4	58·4	75·7	90·7	100·6	100·7	93·4	91·2	98·8	111·9	128·5	146·0	164·0	181·3
	Jup. ...	301·2	302·9	304·7	305·8	306·7	307·6	307·8	308·0	307·5	306·8	306·0	304·8	303·5	302·0	300·7	299·6	298·4	297·7
	Sat. ...	35·4	36·7	38·0	39·4	40·7	42·0	43·4	44·7	46·0	47·2	48·3	49·4	50·5	51·1	51·6	52·1	52·2	52·1

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·6	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260	270		280	290	300	310	320	330	340	350	360
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
212·9	219·8	227·0	234·3	241·8	249·2	256·7	264·4	271·9	279·8	**1665**	287·6	295·4	303·4	311·3	319·1	326·9	334·8	342·7	350·4
197·8	208·2	210·6	204·5	199·1	203·0	214·9	230·2	247·0	264·5		281·8	297·7	310·6	317·0	314·4	307·3	307·6	317·9	332·5
259·8	260·9	262·5	264·1	265·8	267·8	269·9	271·9	272·9	276·6		278·9	281·3	283·6	286·0	288·2	290·4	292·5	294·5	296·5
241·8	242·8	243·6	244·4	245·6	246·7	248·8	249·0	250·2	251·3		252·4	253·5	254·6	255·4	256·3	257·2	257·7	258·1	258·6
117·9	123·6	129·5	134·9	140·3	145·5	150·2	154·9	158·9	162·5	**1666**	165·5	167·7	168·9	168·6	167·1	164·6	161·0	157·1	153·3
195·1	191·8	184·0	185·8	195·9	210·0	226·4	243·9	261·0	277·4		291·0	299·1	298·9	290·9	289·0	297·4	310·4	327·8	346·2
292·4	292·4	292·9	293·7	294·9	295·9	297·5	299·2	300·5	303·3		305·4	307·8	310·1	312·4	315·1	317·3	319·7	322·1	324·4
252·3	253·0	253·7	254·5	255·5	256·5	257·6	258·7	259·9	261·1		262·3	263·5	264·6	265·5	266·5	267·5	268·1	268·7	269·4
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
228·9	236·0	243·2	250·6	258·0	265·7	273·3	280·9	288·7	296·5	**1667**	304·3	312·2	319·9	327·9	335·5	343·2	350·8	358·4	5·8
169·3	167·3	176·4	190·0	206·0	223·4	240·4	257·1	271·4	281·1		282·9	276·0	272·0	277·5	290·0	306·1	323·9	342·5	0·5
330·8	329·8	328·8	328·6	328·2	328·6	329·2	329·9	331·2	332·5		333·4	336·0	338·1	340·8	343·0	345·3	347·7	350·1	352·3
263·0	263·6	264·2	264·7	265·7	266·5	267·5	268·7	269·9	271·0		272·2	273·4	274·5	275·6	276·7	277·8	278·6	279·5	280·3
																	Mr 3	Mr 13	Mr 23
131·1	137·2	143·1	149·1	154·9	160·6	167·0	171·5	176·8	182·0	**1668**	186·8	191·4	195·6	199·3	202·2	204·7	206·0	206·5	205·6
157·3	170·1	185·8	202·8	220·3	236·9	252·0	263·1	267·2	261·9		255·8	258·7	269·7	284·7	302·0	320·2	338·4	355·8	10·8
12·8	10·9	9·5	8·3	7·1	6·1	5·5	4·8	4·8	5·8		5·7	6·8	8·0	9·4	11·2	13·0	15·2	17·4	19·4
274·1	274·4	274·9	275·3	276·1	277·0	277·8	278·9	280·0	281·0		282·3	283·5	284·6	285·8	287·1	288·2	289·1	290·0	291·0
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
247·7	254·6	261·8	269·1	276·6	283·9	291·4	299·0	306·6	314·2	**1669**	321·8	329·2	336·9	344·3	351·7	359·1	6·4	13·7	20·9
165·1	182·2	199·6	216·6	232·3	244·8	250·9	248·2	240·7	240·7		250·1	264·0	280·6	298·3	306·7	333·8	349·3	0·6	3·7
51·2	50·6	49·7	48·8	47·6	46·3	44·8	43·7	42·6	41·5		41·1	40·6	40·9	41·2	42·1	43·2	44·5	45·8	47·6
285·6	285·8	285·9	286·1	286·8	287·5	288·2	289·2	290·2	291·3		292·5	293·7	294·8	296·0	297·2	298·5	299·6	300·7	301·7
143·7	149·8	156·0	162·1	168·2	174·3	180·4	186·4	192·4	198·4	**1670**	204·3	209·9	215·7	221·2	226·6	232·0	236·9	241·6	245·6
178·0	196·3	212·6	226·1	234·7	234·3	227·3	223·6	230·2	244·0		259·8	277·4	295·2	312·5	328·4	340·2	345·5	340·7	334·9
84·5	85·0	85·7	85·5	85·1	84·5	83·5	82·3	81·0	79·8		78·5	77·4	76·1	75·5	75·2	74·9	75·1	75·6	76·6
297·7	297·6	297·6	297·6	298·1	298·5	299·1	300·0	300·9	301·8		303·0	304·2	305·3	306·5	307·7	309·0	310·2	311·4	312·6
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
273·0	279·0	285·3	291·9	298·6	305·4	312·2	319·2	326·3	333·2	**1671**	340·4	347·4	354·4	1·4	8·3	15·1	22·0	28·8	35·7
192·4	207·1	217·4	219·6	213·1	208·2	212·5	224·2	239·5	256·5		274·0	291·5	307·5	320·4	327·1	324·2	317·3	318·0	327·9
118·3	114·6	115·8	117·0	117·4	118·0	118·0	117·7	117·2	116·3		115·2	114·1	112·8	111·3	110·1	109·1	108·3	107·6	107·5
310·3	310·1	309·9	309·5	309·8	310·1	310·5	311·3	312·0	312·7		313·8	314·9	316·1	317·3	318·5	319·8	321·0	322·2	323·5
																	Mr 3	Mr 13	Mr 23
155·7	162·2	168·6	174·9	181·4	187·7	194·1	200·5	206·9	213·4	**1672**	220·0	226·5	233·0	239·4	246·0	252·4	258·9	265·5	271·9
199·3	204·2	199·9	193·2	194·6	204·8	219·2	235·7	253·1	270·5		286·9	300·7	308·7	308·4	301·0	299·2	306·8	321·0	337·8
138·5	140·6	142·4	143·9	145·7	146·6	147·5	148·4	149·1	149·1		148·7	148·4	147·5	146·4	145·1	143·9	142·5	141·2	140·5
323·5	323·1	322·7	322·2	322·3	322·4	322·4	323·0	323·6	324·3		325·3	326·3	327·3	328·6	329·7	331·0	332·3	333·6	334·9
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
320·7	321·6	328·8	326·7	330·6	334·9	339·5	344·8	350·0	355·8	**1673**	1·5	7·6	13·4	19·5	25·6	31·8	38·0	44·3	50·6
186·1	178·5	177·2	185·8	199·1	215·3	232·4	249·9	266·2	280·9		291·0	292·4	285·9	281·4	287·4	299·8	315·9	333·7	352·4
182·7	164·6	166·7	168·9	170·9	172·7	174·2	175·7	177·1	178·0		178·7	178·7	179·3	178·9	178·3	177·4	176·4	175·4	174·0
337·5	336·8	336·2	335·6	335·4	335·2	335·1	335·4	335·8	336·3		337·2	338·1	338·9	340·0	341·2	342·4	343·7	345·0	346·2
167·9	174·9	181·0	187·6	194·2	201·0	207·6	214·5	221·2	228·1	**1674**	235·0	242·0	249·1	256·2	263·2	270·5	277·7	285·1	292·4
160·3	166·9	179·2	195·0	212·0	229·3	246·0	261·2	272·6	276·3		271·6	265·1	268·3	278·9	294·4	311·7	330·0	348·4	5·6
185·8	188·3	190·2	192·3	194·5	196·9	198·9	200·9	202·6	204·2		205·7	207·2	208·1	208·7	209·2	209·5	209·1	208·6	207·9
352·0	351·2	350·4	349·6	349·2	348·7	348·4	348·6	348·8	348·9		349·5	350·2	350·9	351·9	353·1	354·1	355·4	356·7	358·0
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
37·8	37·4	35·7	33·4	30·5	28·3	26·1	25·3	26·1	27·6	**1675**	30·0	33·0	36·7	41·0	45·5	50·4	55·4	60·8	66·2
159·3	174·5	191·5	208·9	226·0	241·5	253·9	260·1	257·0	249·7		250·2	259·3	273·6	290·6	308·3	326·7	344·0	359·6	11·0
209·9	211·9	214·1	216·3	218·5	220·7	222·7	225·2	227·3	229·4		231·4	233·2	234·9	236·7	238·0	238·9	239·8	240·5	240·5
6·8	6·0	5·2	4·3	3·7	3·1	2·5	2·4	2·2	2·1		2·6	3·1	3·5	4·4	5·3	6·1	7·3	8·6	9·8
																	Mr 3	Mr 13	Mr 23
180·3	187·0	193·6	200·5	207·5	214·3	221·3	228·3	235·5	242·8	**1676**	249·1	257·5	265·0	272·4	279·9	287·6	295·2	302·9	310·7
170·7	188·0	205·6	221·8	235·3	243·5	243·2	235·6	232·9	239·8		253·3	269·3	286·9	304·2	322·5	338·3	350·8	355·8	351·8
235·4	236·8	238·8	240·9	242·9	245·2	247·4	249·7	252·0	254·3		256·6	258·7	260·9	263·2	265·1	267·0	268·6	269·9	271·2
22·0	21·2	21·3	19·6	18·8	18·1	17·3	16·8	16·4	16·1		16·2	16·4	16·6	17·4	18·2	18·9	20·0	21·1	22·2
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
75·2	79·4	82·8	85·5	87·0	87·8	87·1	84·8	81·7	78·1	**1677**	74·6	72·0	70·4	70·4	71·5	73·6	76·3	79·9	83·9
184·9	201·7	216·1	226·4	228·7	221·8	217·1	221·7	233·3	248·5		265·8	284·1	300·9	317·2	330·3	337·3	335·1	327·6	327·9
264·0	264·9	266·2	267·8	269·5	271·5	273·6	275·7	277·7	280·0		282·3	284·8	287·0	289·4	291·9	294·2	296·4	298·4	300·4
37·1	36·5	35·8	35·0	34·2	33·4	32·5	31·9	31·3	30·7		30·6	30·5	30·4	31·0	31·4	31·9	32·9	33·8	34·8
193·4	200·3	207·2	214·1	221·1	228·2	235·5	242·9	250·3	257·9	**1678**	265·5	273·1	280·8	288·6	296·4	304·1	312·1	320·1	327·8
196·8	208·7	213·2	208·7	202·1	203·5	218·6	228·2	244·0	262·5		279·8	296·4	310·2	319·1	318·3	311·8	309·5	317·3	330·8
297·8	297·1	297·5	298·2	299·0	300·2	301·7	303·3	305·1	307·1		309·8	311·6	313·9	316·3	318·5	321·2	323·5	325·9	328·3
52·1	51·6	51·1	50·6	49·8	49·0	48·1	47·4	46·6	45·8		45·5	45·2	44·7	45·0	45·2	45·5	46·2	46·9	47·7

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Srav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
	Eng. date ...	Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1678	Mars ...	331·9	339·8	347·5	355·2	2·7	10·3	17·6	25·0	32·3	29·3	46·1	53·1	59·7	66·4	72·6	78·9	84·9	90·7
	Merc. ...	339·8	357·7	16·4	35·2	53·2	69·0	80·0	83·1	76·6	72·5	78·2	90·9	107·0	124·6	142·5	160·6	176·7	189·8
	Jup. ...	329·4	331·7	333·8	335·7	337·9	339·5	340·8	342·2	343·1	343·8	344·0	343·8	343·5	342·6	341·6	340·3	339·2	337·7
	Sat. ...	48·3	49·7	50·9	52·0	53·3	54·6	55·9	57·4	58·7	60·0	61·3	62·4	63·7	64·4	65 3	66·1	66·4	66·9
1679	Mars ...	107·5	110·3	113·9	118·0	122·5	127·3	132·4	137·9	143·4	149·2	155·1	161·0	167·5	173·7	180·3	186·7	193 3	205·3
	Merc. ...	354·0	12·2	30·6	47·0	59·5	64·2	59·2	53 6	57·6	69·2	85·1	102·7	121·1	139·2	156·0	170·5	179·8	180·4
	Jup. ...	357·1	359·2	1·6	4·0	6·6	8·8	10·8	12·9	14·9	16·4	17·8	19·1	19·8	20·3	20·5	20·2	19·8	18·9
	Sat. ...	61·5	62·5	63·7	64·7	66·0	67·3	68·5	69·9	71·2	72·6	73·9	75·2	76·4	77·5	78·5	79·5	80·1	80·6
	Eng. date ...	Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1680	Mars ...	348·3	356·0	3·6	11·0	18·7	26·0	33·2	40·5	47·5	54·5	61·4	68·0	74·8	81·2	87·8	94·0	100·1	106·3
	Merc. ...	7·9	24·7	38·1	45·3	41·7	34·7	36·9	47·2	62·6	80·4	98·8	117·2	135·0	150·2	161·5	164·7	159·2	153·3
	Jup. ...	24·8	27·1	29·5	31·9	34·3	36·7	38·8	41·4	43·6	45·7	47·7	49·8	51·2	53·0	54·1	55·0	55·8	56·0
	Sat. ...	74·9	75·7	76·6	77·5	78·6	79·9	81·1	82·4	83·7	85·0	86·4	87·7	89·2	90·2	91·3	92·5	93·4	94·2
1681	Mars ...	137·0	136·9	137·6	139·7	142·5	146·0	150·1	154·7	159·7	165·0	170·7	176·5	182·6	188·8	195·3	201·8	208·5	215·4
	Merc. ...	16·7	24·9	33·3	16·2	16·1	25·6	40·5	57·9	76·5	95·2	113·2	129·5	142·2	147·7	143·9	137·0	137·8	148·8
	Jup. ...	52·4	54·4	56·5	58·7	60·7	62·2	65·4	67·7	70·0	72·4	74·7	76·8	79·0	81·0	83·1	84·7	86·3	87·3
	Sat. ...	88·4	89·0	89·7	90·3	91·4	92·4	93·5	94·5	96·0	97·2	98·6	99·9	101·3	102·5	103·8	105·0	106·0	107·1
	Eng. date ...	Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1682	Mars ...	3·9	11·5	18·7	26·1	33·2	40·4	47·6	54·6	61·5	68·3	75·0	81·8	88·2	94·8	101·3	107 6	113·8	119·9
	Merc. ...	5·5	358·6	356·3	3·8	17·9	35·1	53·6	72·6	91·2	108·2	122·0	129·8	128·2	120·8	120·3	129·1	142·9	159·5
	Jup. ...	81·3	82·3	83·8	85·2	87·0	89·1	91·0	93·2	95·5	97·8	100·0	102·3	104·6	106·7	108·9	111·1	113·1	114·9
	Sat. ...	102·2	102·5	102·9	103·3	104·1	105·0	105·8	106·9	108·1	109·5	110·6	111·9	113·2	114·5	115·8	117·1	118·2	119·3
1683	Mars ...	182·4	178·9	175·8	173·9	173·0	173·6	175·6	178·4	181·8	186·0	190·7	195·7	201·5	207·3	213·2	219·6	226·1	232·9
	Merc. ...	337·8	342·7	355·9	12·4	30·6	49·6	68·5	86·3	101·1	110·8	111·8	104·7	101·8	108·5	121·8	138·2	155·7	173·4
	Jup. ...	111·7	111·9	113·2	113·0	114·2	115·5	117·1	118·8	120·4	122·4	124·6	126·8	128·9	131·1	133·4	135·6	137·7	139·9
	Sat. ...	116·1	116·1	116·2	116·3	117·0	117·7	118·2	119·3	120·3	121·3	122·6	123·9	125·1	126·4	127·9	129·0	130·2	131·4
	Eng. date ...	Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1684	Mars ...	18·9	26·1	33·2	40·2	47·2	54·2	60·9	67·7	74·6	81·2	87·8	94·3	100 9	107·2	113·8	120·0	126·2	132·7
	Merc. ...	334·2	349·8	7·9	26·1	45·1	64·0	79·0	91·1	93·8	87·9	83·1	88·7	101·1	116·9	134·3	152·4	170·0	186·1
	Jup. ...	144·3	143·5	142·8	142·5	142·6	143·1	143·9	144·7	146·0	147·4	149·2	154·1	153·0	154·8	156·9	159·1	161·3	163·5
	Sat. ...	130·0	129·7	129·5	129·4	129·8	130·1	130 6	131·4	132·3	133·1	134·3	135·4	136·6	137·9	139·2	140·4	141·6	142·9
1685	Mars ...	233·8	235·1	235·6	234·9	233·0	230·7	227·5	225·4	223·8	223·6	224·4	226·7	229·9	233·9	238·6	243·8	249·6	255·5
	Merc. ...	345·4	3·9	22·8	41·1	57·4	70·0	75·i	70·4	64·5	67·9	79·6	95·1	112·6	130·9	148·9	165·7	179·9	189·1
	Jup. ...	178·0	176·7	175·4	174·6	173·8	172·9	172·8	172·7	173·1	173·9	174·7	176·0	177·4	179·2	181·0	182·9	184·8	187·1
	Sat. ...	143·7	143·2	142·8	142·5	142·6	142·8	142·8	143·5	144·2	144·8	145·8	146·8	147·9	149·1	150·3	151·5	152·8	154·1
	Eng. date ...	Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1686	Mars ...	33·4	40·4	47·2	54·0	60·6	67·4	74·0	80·5	87·0	93·6	100·1	106·5	112·9	119·5	125·7	132·0	138·3	144·7
	Merc. ...	0·2	18·4	35·2	48·9	55·8	53·0	46·0	47·4	57·9	73·2	90·6	109·0	127·3	144·8	160·0	171·0	174·4	168·3
	Jup. ...	212·1	211·0	209·7	208·4	207·0	205·9	204·9	204·0	203·2	203·0	203·1	203·3	204·1	205·2	206·4	208·7	209·3	211·2
	Sat. ...	157·2	156·6	156·0	155·4	155·2	155·2	155·1	155·5	155·9	156·3	157·2	158·1	159·0	160·0	161·2	162·3	163·5	164·8
1687	Mars ...	265·8	271·5	276·9	281·9	286·7	291·1	294·9	297·9	300·0	301·0	301·1	298·9	296·4	293·8	291·8	291·4	292·1	293·9
	Merc. ...	12·8	27·4	37·6	34 9	27·7	26·9	36·4	50·8	68·9	86·6	105·3	123·5	139·5	152·1	157·5	154·3	146·9	148·7
	Jup. ...	245·2	244·8	244·4	243·6	242·6	241·3	240·2	238·8	237·6	236·5	235·3	234·8	234·3	234·6	234·6	235·5	236·5	237·5
	Sat. ...	170·4	169·7	169·0	168·3	168·0	167·6	167·3	167·5	167·7	167·8	168·6	169·3	170·0	171·0	172·1	173·1	174·3	175·5
	Eng. date ...	Mar 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1688	Mars ...	48·4	54·7	61·2	67·6	74·0	80·4	86·7	93·2	99·3	105·7	112·1	118·4	124·7	131·2	137·5	143·8	150·3	156·8
	Merc. ...	15·1	16·5	9·5	6·8	14·8	28·4	45·7	63·9	82·9	101·5	118·3	132·1	139·8	138·3	131·9	120·2	138·9	152·4
	Jup. ...	276·2	277·1	277·6	278·0	278·0	277·8	276·9	275·9	274·7	273·6	272·1	271·0	269·6	268·6	268·0	267·4	267·4	267·7
	Sat. ...	183·3	182·5	181·7	180·9	180·4	179·9	179·4	179·4	179·4	179·3	179·8	180·3	180·8	181·7	182·6	183·5	184·6	185·8
	Eng. date ...	Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1689	Mars ...	288·7	295·7	302·6	309·8	316·6	323·4	330·1	336·6	342·8	348·9	354·5	359·6	4·1	8·1	11·0	12·9	13·3	12·4
	Merc. ...	352·3	347·8	353·3	6·2	22·8	41·1	60·2	78·9	96·5	111·2	120·9	122·0	115·0	112·2	118·7	1..1·8	127·9	165·2
	Jup. ...	305·9	306·9	308·8	310·1	311·1	312·2	312·5	312·9	312·6	312·3	311·5	310·3	309·2	307·6	306·3	305·0	303·9	302·9
	Sat. ...	195·8	195·0	194·2	193·4	192·8	192·2	191·5	191·3	191·1	190·7	191·1	191·3	191·6	192·4	193·2	193·9	195·0	196·0
1690	Mars ...	65·0	69·1	74·9	81·0	87·1	93·1	99·2	105·4	111·6	117·9	124·0	130·3	136·6	143·0	149·4	155·8	162·3	168·8
	Merc. ...	332·2	344·3	0·3	18·2	37·1	56·1	74·2	90·0	101·3	104·5	98·5	93·7	98·6	111·0	126·7	144·0	161·8	179·4
	Jup. ...	332·3	335 5	337·7	339·7	341·7	343·6	345·2	346·4	347·7	348·4	349·0	348·9	348·9	348·1	347·4	345·9	344·9	343·5
	Sat. ...	208·0	207·2	206·4	205·7	205·0	204·1	203·5	203·1	202·7	202·3	202·3	202·4	202·5	203·1	203·7	204·2	205·1	206·0
1691	Mars ...	307·6	315·2	322·8	330·3	337·8	345·3	352·7	359·9	7·0	14·0	20·7	27·4	33·7	39·7	45·5	50·8	55·5	60·2
	Merc. ...	337·9	355·6	14·0	33·1	51·6	68·1	80·6	86·1	81·5	75·4	78·6	89·8	104·9	122·5	140·6	158·6	175·1	189·4
	Jup. ...	0·9	3·3	5·4	8·8	10·6	12·7	15·1	17·1	19·1	20·6	22·1	23·6	24·5	25·0	25·5	25·4	24·9	24·4
	Sat. ...	219·8	219·1	218·4	217·7	216·9	216·1	215·4	214·8	214·2	213·7	213·5	213·5	213·4	213·8	214·1	214·6	215·4	216·3
	Eng. date ...	Mr 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1692	Mars ...	79·2	84·3	89·7	95·3	100·8	106·5	112·4	118·3	124·2	130·4	136·5	142·6	149·0	155·3	161·7	168·2	174·7	181·4
	Merc. ...	351·6	10·5	28·8	45·9	59·7	66·5	64·1	57·1	58·4	69·1	83·3	100·6	118·8	137·3	154·8	169·6	180·7	183·5
	Jup. ...	28·6	30·9	33·2	35·6	38·0	40·4	42·7	45·1	47·4	49·5	51·6	53·6	55·2	57·1	58·3	59·4	60·1	60·7
	Sat. ...	231·3	230·8	230·3	229·6	228·8	228·0	227·3	226·6	225·9	224·9	224·0	224·6	224·3	224·5	224·7	225·0	225·7	226·3

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
20	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260	270		280	290	300	310	320	330	340	350	360
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
96·3	101·7	106·5	111·1	115·1	118·7	121·4	123·1	124·0	123·8	**1679**	122·1	119·3	115·6	119·9	108·4	105·7	104·9	104·9	106·6
197·0	194·9	187·4	186·6	195·0	208·3	224·5	241·8	259·2	275·8		290·3	300·8	302·1	295·2	291·3	297·2	309·5	326·0	343·8
336·2	335·1	334·2	333·5	333·2	333·4	333·7	335·4	335·6	336·7		338·2	340·2	342·1	344·1	346·3	348·6	351·0	353·4	355·6
67·0	66·8	66·5	66·2	65·5	64·8	64·1	63·2	62·4	61·5		60·9	60·3	59·6	59·6	59·5	59·4	60·0	60·5	61·0
																	Mr 3	Mr 13	Mr 23
207·1	214·1	221·2	228·3	235·7	243·2	250·6	258·2	265·8	273·6	**1680**	281·2	289·1	297·0	304·8	312·7	320·5	328·6	336·4	344·1
178·1	169·8	176·3	188·5	204·2	221·2	238·6	255·5	270·5	282·0		285·3	280·3	274·4	278·0	288·9	304·2	321·7	340·2	358·6
18·0	16·7	15·3	13·9	12·4	11·4	11·5	10·1	9·8	9·8		10·4	11·3	12·2	13·7	15·3	16·9	19·0	21·1	23·3
81·2	81·2	81·2	81·2	80·6	80·1	79·6	78·7	77·9	77·1		76·3	75·6	74·8	74·5	74·1	73·8	74·0	74·3	74·5
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
112·1	118·0	123·4	128·8	134·0	138·8	143·4	147·2	150·7	153·2	**1681**	155·2	156·0	155·6	153·6	150·4	146·8	142·9	139·8	137·8
157·5	168·9	183·8	200·6	218·1	235·0	250·7	268·2	270·2	266·5		259·3	259·6	268·6	283·0	299·9	318·0	336·4	354·0	9·7
58·2	55·7	54·9	54·1	52·9	51·6	50·2	48·9	47·8	46·6		45·9	45·6	45·4	45·7	46·2	47·2	48·5	49·8	51·4
94·9	95·2	95·4	95·7	95·5	95·2	94·9	94·1	93·3	92·6		91·9	91·0	90·1	89·7	89·0	88·4	88·4	88·3	88·2
222·3	229·4	236·6	243·9	251·4	258·9	266·5	274·3	282·0	289·8	**1682**	297·6	305·5	313·4	321·1	329·0	336·8	344·5	352·2	359·8
163·5	180·1	197·6	214·6	230·9	244·5	252·7	252·0	244·4	242·3		249·4	262·6	278·8	296·4	314·6	332·2	348·4	1·0	6·5
88·8	89·6	90·2	90·2	89·9	89·2	88·6	87·4	87·2	85·0		83·5	82·2	81·2	80·4	79·7	79·5	79·8	79·9	80·8
108·0	108·5	109·1	109·5	109·6	109·5	109·5	109·0	108·4	107·7		106·9	106·1	105·3	104·6	103·8	103·1	102·8	102·5	102·1
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
126·1	132·1	137·8	143·6	149·3	155·0	160·3	165·3	170·3	174·9	**1683**	179·1	183·0	186·1	188·7	190·4	190·7	189·9	187·2	184·4
176·9	194·2	211·0	225·4	235·4	237·3	231·0	226·1	230·6	242·6		258·0	275·3	293·1	310·7	327·2	340·4	347·8	345·5	338·4
116·7	118·5	119·7	120·8	121·6	122·3	122·3	122·4	121·9	121·0		120·0	119·0	117·7	116·4	114·9	114·0	112·8	112·3	112·0
120·5	121·2	122·0	122·7	123·0	123·2	123·4	123·1	122·8	122·5		121·8	121·1	120·3	119·5	118·8	117·9	117·3	116·8	116·2
																	Mr 3	Mr 13	Mr 23
239·9	247·0	254·1	261·4	268·8	276·6	284·0	291·7	299·5	307·1	**1684**	314·9	322·6	330·2	337·7	345·5	352·9	0·4	7·6	15·0
190·7	206·0	217·9	222·6	217·7	210·6	212·8	223·0	237·6	254·1		271·9	289·5	306·0	320·2	328·7	328·8	321·4	319·4	326·9
142·0	143·9	145·8	147·5	149·0	150·5	151·7	152·4	153·2	153·3		153·1	152·9	152·2	151·1	149·8	148·6	147·0	146·0	144·8
132·5	133·5	134·4	135·4	135·8	136·4	136·8	136·7	136·7	136·5		135·9	135·2	134·7	133·9	133·1	132·3	131·6	130·9	130·2
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
138·7	144·9	151·0	157·1	163·1	169·0	175·0	180·7	186·6	192·3	**1685**	197·8	203·1	208·3	213·3	218·0	222·4	226·5	229·7	232·6
199·3	206·0	204·4	196·5	195·5	204·1	217·5	238·8	250·9	268·4		285·3	300·0	310·2	311·9	305·6	301·1	307·2	319·6	336·0
165·7	167·8	169·9	172·0	174·2	176·0	177·7	179·2	180·5	181·6		182·6	183·0	183·2	183·3	180·0	182·1	181·2	181·0	178·6
144·2	145·2	146·3	147·3	148·3	148·7	149·4	149·5	149·6	149·8		149·4	149·0	148·6	147·9	147·1	146·4	145·6	144·8	144·0
261·9	268·4	275·1	282·1	289·2	296·4	303·7	311·0	318·7	325·6	**1686**	332·9	340·2	347·5	354·7	1·7	8·9	15·9	23·1	29·8
189·6	182·4	179·2	185·4	197·7	213·3	230·3	247·7	264·7	279·9		291·2	295·4	290·2	284·3	287·5	298·7	314·2	331·7	350·3
189·0	191·3	193·4	195·8	198·0	199·9	202·3	204·2	206·1	207·8		209·3	210·7	212·0	212·7	213·5	213·7	213·5	213·3	212·8
155·3	156·4	158·3	158·7	159·5	160·3	161·2	161·6	162·0	162·3		162·2	162·1	161·8	161·2	160·6	160·0	159·2	158·4	157·4
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
151·0	157·3	163·5	169·9	176·1	182·5	188·7	195·0	201·3	207·5	**1687**	213·8	220·1	226·2	232·5	238·7	244·9	250·8	256·9	262·8
162·8	169·9	178·1	193·2	209·9	227·1	244·3	260·0	272·6	278·8		275·7	268·6	268·8	278·6	293·1	309·8	328·0	346·3	4·3
213·2	215·0	217·4	219·6	221·6	224·1	226·2	228·3	230·7	232·8		234·7	236·8	238·5	240·1	241·4	242·9	244·0	244·7	244·9
166·0	167·2	168·4	169·5	170·5	171·5	172·5	173·1	173·6	174·2		174·3	174·4	174·4	174·0	173·6	173·1	172·3	171·7	170·8
																	Mr 3	Mr 13	Mr 23
297·1	301·1	305·7	310·5	315·9	321·8	327·7	333·8	340·0	346·6	**1688**	353·0	359·2	5·6	12·1	18·7	25·1	31·8	38·1	44·6
158·3	172·8	189·4	206·7	224·1	240·4	253·7	261·8	261·2	253·9		251·3	258·5	272·1	288·4	306·3	324·4	342·3	358·5	11·6
239·1	240·7	242·6	244·4	246·7	248·9	251·1	253·2	255·7	257·9		260·0	262·5	264·7	266·9	268·8	270·7	272·4	274·2	275·5
176·6	177·8	179·0	180·3	181·3	182·4	183·5	184·2	184·9	185·7		185·9	186·2	186·4	186·2	185·9	185·6	185·0	184·3	183·7
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
163·2	169·7	176·1	182·5	189·2	195·8	202·3	208·9	215·6	222·3	**1689**	229·1	236·0	243·0	249·7	256·6	263·6	270·6	277·6	284·7
168·7	184·9	203·6	220·2	234·7	244·6	248·3	239·7	235·1	240·3		251·8	267·6	284·6	302·6	321·2	336·9	350·5	358·0	356·1
268·2	269·1	270·3	271·7	273·3	275·2	276·0	279·1	281·5	283·6		285·9	288·5	290·6	293·0	295·6	297·9	299·9	302·6	304·2
187·0	188·2	184·4	190·6	191·7	192·8	193·9	194·7	195·6	196·5		197·0	197·5	197·9	197·9	197·8	197·8	197·2	196·6	196·1
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
10·3	7·8	5·2	3·5	2·9	3·2	4·4	6·7	9·8	13·4	**1690**	17·6	22·4	27·1	32·2	37·4	42·9	48·5	54·4	60·1
183·0	200·0	215·1	226·6	231·1	226·4	219·9	220·0	232·3	247·0		263·8	281·5	299·1	315·8	329·9	338·9	338·9	331·3	329·8
302·4	302·2	302·1	302·7	303·5	304·5	305·8	307·4	309·0	311·0		313·7	315·3	317·7	320·1	322·4	324·9	327·9	329·7	332·7
197·1	198·3	199·5	200·6	201·8	203·0	204·1	205·1	206·1	207·0		207·7	208·3	208·9	209·1	209·3	209·4	209·0	208·7	208·2
175·4	181·9	188·7	195·4	202·1	209·0	215·8	222·7	229·9	237·8	**1691**	244·3	251·4	258·7	266·1	273·5	281·0	288·4	296·0	303·6
195·4	208·4	215·2	213·0	205·4	204·4	213·0	226·8	242·9	260·3		277·8	294·6	309·6	319·8	322·1	315·7	311·3	316·7	329·6
342·1	340·7	339·7	338·9	338·3	338·3	338·3	339·0	339·8	341·0		342·5	344·3	345·9	347·9	350·2	352·4	354·8	357·1	359·6
207·0	208·3	209·3	210·5	211·7	212·9	214·1	215·1	216·2	217·2		218·0	218·7	219·5	219·8	220·2	220·5	220·5	220·4	220·0
																	Mr 8	Mr 13	Mr 23
64·1	67·1	69·1	70·2	69·9	68·2	65·6	62·3	59·0	56·2	**1692**	54·6	54·6	55·4	57·5	60·1	63·7	67·5	72·0	76·7
198·4	198·8	191·5	188·1	194·7	206·9	222·4	239·7	257·1	274·2		289·4	300·7	305·2	299·7	293·8	297·4	308·4	324·1	341·7
28·4	22·1	20·7	19·3	18·0	16·9	15·9	15·1	14·7	14·6		15·0	15·8	16·8	17·9	19·2	21·2	23·1	25·0	27·2
217·1	218·2	219·2	220·3	221·6	222·9	224·1	225·2	226·3	227·4		228·2	229·1	230·0	230·4	230·9	231·3	231·3	231·3	231·3
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
188·1	194·9	201·7	208·5	215·6	222·8	229·9	237·2	244·5	252·0	**1693**	259·3	266·9	274·6	282·2	289·9	297·8	305·6	313·3	321·2
177·6	172·2	176·2	187·4	202·3	219·3	236·5	253·6	269·3	282·0		288·2	285·1	278·1	278·7	287·9	302·4	319·7	338·0	356·6
60·8	60·9	60·2	59·3	58·3	57·0	55·6	54·4	53·2	52·0		51·0	50·5	50·3	50·4	50·6	51·4	52·6	53·7	55·4
227·0	228·0	229·0	230·1	231·3	232·5	233·9	234·6	235·8	237·0		238·0	239·0	240·0	240·6	241·3	242·0	242·2	242·5	242·6

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Mar 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1693 Mars	...	325·3	333·1	340·9	348·4	356·0	3·6	11·1	18·4	25·6	32·7	39 8	46·5	53·2	59·7	66·0	72·1	78·1	83·6
Merc.	...	6·2	23·4	37·9	46·5	48·0	38·8	38·1	46·7	61·2	78 4	96·9	115·2	133·1	149·1	161·6	167·2	163 4	156·5
Jup.	...	56·3	58·2	60·2	62 3	64·3	66·5	68·9	71·2	73·6	75·9	78 2	80·4	82·8	84 6	86·6	88·6	90·2	91·5
Sat.	...	242·7	242·3	241·9	241·5	240·8	240·1	239·3	238·5	237·8	237·0	236·5	235·0	235·6	235·5	235·6	235·6	236·2	236·7
1694 Mars	...	98·7	102 1	106·3	111·0	115·8	121·0	126·6	131·9	137·8	143·6	149·5	155·8	162·0	168·3	174·7	181·2	188·0	194·7
Merc	...	16·1	26·5	27·6	20·7	17·9	25·1	39·1	55·9	74 2	92·9	111·2	128 0	142·1	149·5	148·4	140 8	139·9	147·9
Jup.	...	85·1	86·3	87·6	89·1	90·9	92·8	94·6	96·7	98·9	101·2	103·2	105·6	107·9	110·2	112 4	114 5	116·6	118·5
Sat.	...	253·6	253·4	253·2	252 0	252·3	251·7	251·1	250·4	249·6	248·8	248·2	247·5	246·9	246 7	246·6	246·4	246·8	247·2
1625 Mars	...	342·1	349·9	357·4	5·1	12·6	20·0	27·3	34·5	41·8	48·8	55·6	62·4	69·0	75·7	82·1	88 3	94·6	100·5
Merc.	...	9·3	3 6	358·6	4·1	16·7	33·1	51·4	70·3	89·2	106·2	121·5	131 4	132·1	125·4	122·0	128·8	141·5	157·4
Jup.	...	116·0	116·1	116·5	117·0	118·1	119·3	120·6	122·2	124 0	126·0	128·1	130·2	132·4	134·3	136·5	139·0	141 2	143·4
Sat.	...	264·7	264·7	264·6	264·6	264·1	263·6	263·0	262·2	261·4	260·7	260·0	259·3	258·6	258 3	259·9	257·5	257·7	257·9
Eng. date	...	Mar 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1696 Mars	...	124·1	125 2	127·4	130 2	133·9	138 0	142·7	147·6	153 0	158 5	164·4	170·2	176 4	182·6	189 1	195·6	204·4	209·2
Merc.	...	340·4	342·9	353·0	10 5	28·5	47·3	66·4	84·4	100·1	111 7	115·0	109·1	104 1	108·3	120·9	136·3	153 5	171·2
Jup.	...	148·9	148·0	147·2	146 8	146·6	147·0	147 7	148 6	149·6	151 0	152·6	154·4	156 1	158·3	160·4	162·3	164·7	166·9
Sat.	...	275·4	275·7	275·9	276·1	275·7	275·4	275·1	274·3	273·6	272 9	272·2	271·4	270·6	270·1	269·6	269·0	268·9	269·0
Eng. date	...	Mar 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1697 Mars	...	357·9	5·4	13 0	20 3	27·7	34·9	42·1	49·1	56·1	62 9	69 9	76·5	83·2	90·1	96·1	102·4	108·6	114·7
Merc.	...	333·4	348·3	5·8	24·7	43 7	62·0	78·4	91·3	98·7	92·6	86·3	88·8	100 0	115·1	132·3	150·3	169·0	184·5
Jup.	...	182·7	181·4	180·1	179·1	178·0	177·3	176·9	176·7	177·0	177·4	178·6	179·5	180·9	182·5	184·4	186·0	188·2	190·1
Sat.	...	286·4	286·7	287·0	287·5	287·8	287·1	287·0	286·4	285·8	285·3	284·5	283·7	283·0	282·3	281·6	280·9	280·7	280·5
1698 Mars	...	162·1	159·3	158·0	158·1	158·8	161·1	164·1	167·8	172·0	176·7	182·0	187·4	193·3	199·5	205·6	212·1	218·8	225·7
Merc.	...	343·4	1 8	20 6	3·2	56·3	70·2	77·3	75·4	68·2	68·9	78·5	93·5	110·6	127·0	146·9	164·0	179·0	189·8
Jup.	...	216·8	215·7	214·5	213 2	211·8	210·8	209 6	208·6	207·9	207 3	207·3	207·6	208 0	208 9	210·1	211·2	212·9	214·9
Sat.	...	297·2	297·8	298·4	298·9	299 0	299·1	299·2	298·7	298·3	297 9	297·1	296·4	295·6	294·8	294 1	293·4	293·0	292·5
1699 Mars	...	13 0	20·4	27·5	34·8	41·8	49 0	55·9	62·6	69·5	76·2	82·8	89·5	96·0	102·6	108 9	115·0	121·6	127·8
Merc.	...	358·0	15·7	33 7	48·5	57·5	57·5	50 4	48·6	57·5	71 8	88 0	106 8	125·2	142·9	158·8	171·3	176·9	172·9
Jup.	...	249·4	249 2	249·2	248·3	247·6	246·4	245·1	243 8	242·5	240·9	240·1	239·4	239·0	238·8	238·9	239·6	240·3	241 5
Sat.	...	308·1	308·9	309 6	310·4	310·8	311·1	311·3	311 1	310·8	310·6	310·0	309·4	308·7	307·9	307·1	306·2	305·6	305·1
Eng. date	...	Mar 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1700 Mars	...	215 8	214·5	212·3	209·2	205·9	203·3	201·9	201·8	202·7	205·2	208·1	212·0	216 5	221·6	227·1	232·8	239 2	245·7
Merc.	...	11·5	27 1	37·4	38·8	32 0	29·1	36 1	49 8	66·2	84·3	103·0	121·3	138·0	151·9	158 9	158·2	150·5	149 8
Jup.	...	280·0	281 2	282 0	282·4	282·7	282·4	282·1	281 1	279 9	278·7	277·9	276 3	274·8	273·7	272·9	272·5	272·1	272·2
Sat.	...	319·1	320 1	321·0	322 0	322·5	323·1	323·6	323·6	323 5	323·5	323·0	323·5	323·0	321·2	320·4	319 6	318·9	318·2
Eng. date	...	Mar 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1701 Mars	...	27·8	34·6	41·6	48·6	55·4	62·2	69·0	75·6	82 0	88 7	95·4	101·8	108 2	114·7	121·1	127 5	133·7	140·1
Merc.	...	16·4	20·3	14·4	9·5	14·3	27·3	43·5	61·8	80·8	99 2	116·5	131·4	141·3	142·4	135·4	131·8	138 2	151·1
Jup.	...	309·5	310·9	312·9	314·3	315·5	316·4	317·3	317·5	317·7	317 3	316·8	315 9	314·6	313·4	312·1	310·5	209·3	308·4
Sat.	...	330·3	331·4	332·5	333 6	334·3	335·1	335·8	336·0	336 3	336·5	336·2	336·0	335·6	334·9	334·9	333 4	332·6	331·8
1702 Mars	...	254·9	259·3	263·6	267·2	269·9	272·0	272·8	272 6	271·6	268·9	266 1	264 4	262·1	263·4	264·7	267·4	271·1	275·4
Merc.	...	357·2	35·8	353 6	5 3	20·9	38 9	57·7	76·4	94·3	110·3	121·7	125·2	119 7	114·4	118·7	130·5	145 9	163 0
Jup.	...	327·1	339·3	341 6	343 7	345 7	347·8	349·3	350·8	352·2	353 0	353·7	354·0	353·9	353·6	352·8	351·8	350 6	349·3
Sat.	...	341·6	342·8	344 0	345·2	346 2	347·1	348·1	348·6	349·2	349·6	349 5	349·5	349·4	348·8	348 3	347·7	346·9	346·1
1703 Mars	...	42·4	48·9	55·5	62·1	68·7	75·2	81·7	88·1	94·6	100·9	107·3	113·7	120 2	126·6	132·9	139·3	145·7	152·0
Merc.	...	334 0	344·1	358·4	16·2	35·0	54·0	72·4	88·9	101·8	107·3	103·1	97·0	98·8	110·0	124 8	142·0	159·7	177·4
Jup.	...	4·9	7·3	9·7	12·9	14·5	16·7	18 9	21·0	22·9	24 9	26·5	27·8	29·1	29·8	30·4	30·5	30 1	29·5
Sat.	...	353·3	354 6	355·9	357 2	358·3	359·4	0·5	1·2	1 9	2·7	2·9	3·1	3 3	2·9	2·6	2·2	1·4	0·7
Eng. date	...	Mar 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1704 Mars	...	280·1	284·9	289·3	293·9	306 3	312·5	318·4	324·2	329·7	334 5	339 0	342 3	346·8	346·0	346·0	344·4	342 0	339·6
Merc.	...	336·7	353 6	12·0	30·9	49·5	66·6	80 6	88·4	86 2	79·1	79·5	89·0	102 8	120·5	138·5	156 3	172·9	188 5
Jup.	...	32·1	34·6	36·9	39 1	41·7	43·8	46·2	48·8	51·0	53·3	55·2	57·4	59·1	60·9	62·5	63 7	64·6	65·4
Sat.	...	5·2	6·5	7·8	9·1	10·3	11·5	12·8	13 7	14·6	15·6	16 1	16·6	17 1	17·0	16·9	16·8	16·2	15·7
Eng. date	...	Mar 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1705 Mars	...	57·3	63·3	69·6	75·6	81·7	88·1	94·1	100·6	106·8	113·0	119·5	125·7	132·1	138·4	144·7	151·0	157·5	164·1
Merc.	...	349·3	8·2	26·8	44 1	59 1	68·5	68·7	61·5	59 7	67·7	81 7	98·6	116·6	134·9	152·4	168 0	180·7	186·1
Jup.	...	61·0	61·9	63·9	66·0	67 9	70·1	72 5	74 7	77·1	79·4	81·6	83 9	86 2	88·5	90 5	92·4	94·1	95·5
Sat.	...	17·3	18·6	19·9	19·3	22 6	23 9	25·3	26·4	27·5	28·6	29·3	30·0	30·7	31 0	31·3	31·4	31·1	30·7
1706 Mars	...	300·2	307·7	315·2	322·3	330·0	337·2	344·7	351·6	358·6	5·4	11 7	18 2	24·0	29·8	35·0	39·4	43·5	46·9
Merc.	...	4·2	21·9	37·4	48·0	50·3	43 5	40 0	46 3	59·9	76·3	94·5	113·1	131·1	147·7	161 6	169·1	167·9	160·6
Jup.	...	89·4	90·2	91·4	93·1	94·3	96·2	98 0	100·2	102·3	104·5	106·7	109·1	111·3	113·5	115·8	117·9	120 0	122·1
Sat.	...	29·7	31·0	32·3	33·5	34·9	36·3	37·7	38·9	40·1	41·4	42·4	43·3	44·3	44·7	45·1	45·6	45·6	45·5

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·6	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999
Saturn, A.D. 1617—A.D. 1999—*cont.*

	180	190	200	210	220	230	240	250	260	270
	S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24
	89·0	93·9	98·5	102·4	105·8	108·4	110·3	110 9	110·3	108 1
	157·9	167·8	182·3	198·6	216·0	233 2	249·3	262 9	271·1	270·2
	93·0	93·8	94·1	94·9	94·6	93·9	93·4	92·6	90·7	90·0
	237·2	238·1	239·0	239·9	241·0	242·1	243·3	244·5	245·7	246·8
	201·9	208·5	215·4	222·7	229·8	237·1	244·5	252·1	259·6	267·3
	161·9	178·1	195·5	212 7	229·3	243·7	253·5	255 3	248 8	244·4
	120·3	121·9	123·3	124·6	125·5	126·2	126·6	126·6	126·5	125·8
	247·5	248·3	249·1	249·8	250·9	251·9	253·0	254·2	255·4	256·5
	106·4	112·1	117·2	122·4	127·2	131·6	135·5	138·5	141·4	143·0
	174·3	191·9	209·2	224·2	235·9	239·8	235 8	229·0	231·1	241·5
	145·4	147·5	149·4	151·1	152·6	154 0	155·2	156·3	157·0	157·5
	258·0	258·6	259·2	259·9	260·9	261·9	262·9	264·1	265·3	266·4
	S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23
	216·1	223·3	230·3	237·7	245·1	252·5	260·2	267·8	275·5	283·3
	188·8	204·6	217·6	224·1	222·2	214·3	213·6	221·4	236·0	252·1
	168·9	171·0	173·4	175·2	177·5	179·5	181·1	182·8	184·1	185·5
	268·4	269·3	269·8	270·3	271·2	272·1	273·0	274·0	275·0	276·0
	S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24
	120·8	126 7	132·4	138·1	143·5	148·5	153·9	158·7	163·1	167·3
	198·7	207·5	207·9	200·3	197·2	203 4	216·2	231·9	248·9	266·4
	192·2	194·7	196·9	198·8	201·0	203·7	205·3	207·6	209·5	211·3
	280·2	280·4	280·7	281·1	281·8	282·9	282·3	284·4	285·5	286·5
	232·8	239·8	247·1	254·4	261·8	269·3	277·0	284·7	292·4	300·2
	192·9	186·9	181·4	185·6	196·7	211·6	227·9	245·7	262·8	278·7
	216·8	218·5	220·7	223·0	225·1	227·1	229 6	231·8	233·8	236·3
	292·0	291·1	292·2	292·2	292 8	293·4	294·0	295·0	296·0	296·9
	134·0	139·9	146 0	152·0	157 8	163·6	169·2	174·9	180·4	185·8
	166·0	167·2	177·2	191 3	207·7	225 1	242·2	258·6	272 0	280·3
	242·9	244·3	246·1	248·3	250 1	252·3	254·5	256·8	259·1	261·4
	304·6	304·4	304·2	304·0	304·4	304·7	305·2	306·1	306·9	307·8
	S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23
	252·4	259·3	266 4	273·6	280·8	288·2	295·6	303 1	310·7	318 2
	157·6	171·3	187·4	204·7	222·1	238·3	252·9	263·0	264·4	257·8
	272·4	273·6	274·5	275·5	277·2	278·9	280 9	283·0	285·0	287 4
	317·4	317·1	316·7	316·3	316·5	316·6	316·9	317 5	318·2	318·9
	S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24
	146·2	152·5	158·7	164·9	171·1	177·3	183·4	189·5	195·5	201·8
	166·8	183·9	201·6	218·3	233·5	244·8	249·0	244·2	237·8	240·1
	307·5	307·1	307·1	307·3	308·0	308·7	309·9	311·5	313·0	314 9
	331·0	330·5	330·0	329·4	329·3	329·2	329 2	329·7	330·2	330·7
	280·4	285·8	291·8	298·0	304·4	310·9	317·4	324·1	331·0	337·7
	180·3	193·0	213·8	226·5	238·3	231·0	223·4	222·7	231·3	245·3
	347·9	346·6	345 2	344·3	343·8	343·4	343·4	343·8	344·5	345·3
	345·2	344·5	343·8	343·0	342·7	342·4	342·1	342·4	342·7	343·0
	158·4	164·8	171·2	177·7	184·1	190·6	197·0	203·5	210·1	216·5
	194·0	207·9	216·8	216·6	209·4	205·7	212·8	225·3	241·0	258·3
	28·8	27·6	26·6	25·2	23·8	22·7	21·3	20·5	19·8	19·7
	0·0	359·2	358·4	357·5	356·9	356·4	355·9	355·9	355·9	355·9
	S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23
	337·6	336·5	336·6	338 0	340·5	343·7	347·5	351·8	356·5	1·5
	199·1	201·9	195·7	190·7	194·5	205·7	220 4	237·4	254·9	272·2
	65·5	65·6	65·1	64·5	63·6	62·5	61·1	59·7	58·5	57·3
	15·0	14·2	13·4	12·6	11·8	11·1	10·4	10·1	9·8	9·5
	S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24
	170·5	177·1	183 8	190·4	197·1	203·8	210·5	217·3	224·4	231·2
	184·5	175·2	176·4	186·4	200·5	217·0	234·3	251·6	268·6	281·4
	96 8	97·7	98·7	99·0	99·3	98·9	98·5	97·6	96·4	95·2
	30·2	29·4	28·7	28·0	27·1	26·3	25·5	24·9	24·4	23·8
	49·0	50·0	50·0	48·8	46·1	43·0	40·0	37·9	36·7	36·7
	158·8	166·7	180·6	196·6	213·8	231·1	247·7	262·2	272·0	273·8
	123·8	125·7	127·2	128·5	129·5	130·4	130·9	131·0	130·7	130·5
	45·3	44·7	44·1	43·5	42·6	41·8	40·9	40·2	39·5	38·5

	280	290	300	310	320	330	340	350	360
	Jn 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
1694	105·1	101·4	97·6	94·5	92·6	91·9	92·5	94·3	96·9
	262·8	260·8	268·1	281·6	298·0	316·0	334·3	352·4	8·7
	88·7	87·4	86·3	85·3	84·4	84·1	83·9	84·2	84·9
	247·9	248·9	250·0	250·8	251·7	252·5	252·9	253·3	253·7
1695	275·1	282·8	290·5	298·4	306·2	314·2	322·2	329·9	337·9
	249·1	261 3	276 8	294·3	312·5	330·3	347·2	0·9	8·9
	124·8	123·9	122·6	121·3	120·0	118·6	117·5	116·8	116·2
	257·7	258·8	259·9	260·9	261·8	262·8	263·3	263·9	264 5
							Mr 3	Mr 13	Mr 23
1696	143·9	142·7	140·7	137·7	133·7	130·3	127·0	124·6	124·1
	256 1	272·9	290·8	308·0	325·6	339·8	349·4	349·8	342·8
	157·4	157·1	156·7	155·7	154·4	153·1	152·1	150·5	149·5
	267·5	268·8	269·9	270·9	271·9	273·0	273·8	274·5	275·2
	Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
1697	291·1	299 1	306·9	314·7	322 6	330·5	338·4	346·0	353·7
	269·5	287 4	304·4	319·4	329·8	332·5	325·9	321·5	326·4
	186·4	187·0	187·5	187·5	187·2	186·7	185·7	184·7	183·4
	277·2	278·4	279·5	280·6	281·8	282·9	283·9	284·8	285·7
	Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
1698	170·6	173 4	175·5	176·2	176·2	174·3	171·3	167·6	163·7
	283·4	298·9	310·6	315·0	310·1	303·9	307·1	318·7	334·1
	212·9	214·5	215·7	216·6	217·3	217·8	217·3	217·8	217·2
	287·7	288·9	290·2	291·4	292·6	293·7	294·7	295·7	296·7
1699	308·0	315·7	323·5	331·2	338·9	346·6	354·1	1·6	9·0
	291·4	297·7	294·8	287·6	288·1	297·8	312·2	329·7	348·1
	238·3	240·2	242·1	244·0	245·5	246·8	247·8	248·5	249·3
	298·1	291·3	300 4	301·6	302·8	304·1	305·3	306·4	307·6
							Mr 3	Mr 13	Mr 23
1700*	190·9	195·6	200·3	205·0	208·2	211·4	213·9	215·5	216·2
	279·8	272·2	270·2	278·0	291·4	307·8	325·9	344·4	2·5
	263·6	266·0	268·2	270·3	272 4	274·4	276·4	278·0	279·4
	308·9	310·0	311·1	312·4	313·7	314·9	316 2	317·4	318·5
	Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
1701	325·6	333·2	340·5	347·9	355·3	2·5	9·9	16·9	24·0
	253·1	258·7	270·7	286·3	303·8	323·2	340·1	357·2	11·4
	289·7	291·9	294·2	296·8	299 0	301·6	303·8	306·0	307·7
	320·0	321·1	322·1	323·3	324·5	325·8	327·1	328·4	329·6
	Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
1702	207·6	213·6	219·7	225·3	231·1	236·7	242·1	247·3	252·9
	250·9	263·5	282·6	300·5	318·4	335·5	350·1	0·0	0·5
	317·0	319·2	321·4	323·9	326·2	328·6	331·0	333·2	335·8
	331·7	332·7	333·5	334·7	335·9	337·1	338·4	339·7	341·0
1703	344·7	351·5	358·4	5·2	12·0	18·6	25·5	32·1	38·8
	261·6	279·4	297·0	314·1	329·1	339·9	342·8	336·5	332·1
	346·8	348·4	349·2	351·9	354·0	356·2	358 6	1·0	3·3
	343·7	344·5	345·3	346·4	347·5	348·6	349·9	351·2	352·5
							Mr 3	Mr 13	Mr 23
1704	223·2	229·8	236·5	243·1	250·2	256·5	263·1	269·9	276·7
	275·8	293·0	308·5	320·4	325·2	320·2	314·4	317·0	328·5
	19·8	20·4	21·0	22·2	23·7	25·2	27·0	29·0	31·7
	356·5	357·1	357·7	358·7	359·6	0·7	1·9	3·1	4·4
	Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
1705	6·9	12·4	18·0	23·9	29·6	35·7	41·7	47·7	53·8
	288·0	301·0	307·4	304·4	297·3	298·1	307·7	322·4	339·6
	56·1	55·5	54·9	54·9	55·3	55·8	56·7	58·0	59·3
	9·8	10·2	10·5	11·4	12·2	13·0	14·2	15·4	16·8
	Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
1706	238·3	245·3	252·4	259·7	266·9	274·2	281·6	288·9	296·3
	289·8	289·2	281·9	279·5	287·4	300·9	317·6	335·8	354·3
	93·9	92·6	91·3	90·2	89·2	88·7	88·5	88·5	89·0
	23·9	23·9	23·9	24·6	25·3	25·9	26·9	28·0	29·0
1707	38·0	40·0	42·9	46·4	50·5	54·8	59·6	64·7	69·8
	267·2	262·9	267·7	280·3	296·1	313·9	332·2	350·3	7·3
	129·6	128·5	127·3	126·2	124·8	123·5	122·3	121·5	120·8
	38·6	38·3	38·1	38·4	38·7	39·1	39·9	40·8	41·7

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

* The year A.D. 1700 was a leap year in the British Isles but not in continental countries other than Russia.

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle.

Venus, A.D. 1765—A.D. 1999

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
	Eng. date ...	Mar 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Jl 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1707	Mars ...	72·6	78·3	83·8	89·5	95·3	101·2	107·2	113·1	119·2	125·3	131·4	137·8	144·0	150·5	156·7	163·3	169·9	176·8
	Merc. ...	15·1	27·2	31·1	25·1	20·5	25·4	37·6	53·8	72·0	90·7	109·2	126·5	141·5	150·7	151·9	144·7	141·6	148·1
	Jup. ...	120·4	120·4	120·4	121·0	121·9	123·0	124·3	125·8	127·5	129·4	131·2	133·2	135·4	137·8	139·8	142·3	144·5	146·4
	Sat. ...	42·4	43·7	45·0	46·2	47·5	48·8	50·2	51·5	52·8	54·1	55·3	56·4	57·5	58·3	59·0	59·7	59·9	60·1
	Eng. date ...	Mar 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1708	Mars ...	318·5	326·2	334·1	341·5	349·2	356·7	4·3	11·5	18·8	25·9	32·9	39·7	46·2	52·7	58·8	64·8	70·5	75·7
	Merc. ...	12·0	8·4	1·9	4·6	15·8	31·3	49·4	68·1	87·2	104·1	120·5	132·3	135·4	129·7	124·4	128·7	140·3	155·4
	Jup. ...	153·5	152·5	151·5	151·1	150·9	150·9	151·5	152·1	153·1	154·4	156·1	157·8	159·5	161·6	163·4	165·7	167·7	169·9
	Sat. ...	55·3	56·5	57·7	58·8	60·1	61·4	62·7	64·0	65·4	66·8	68·1	69·3	70·5	71·4	72·4	73·4	73·8	74·2
	Eng. date ...	Mar 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1709	Mars ...	90·5	94·8	99·4	104·5	109·8	115·2	120·7	126·4	132·3	138·3	144·3	150·4	156·9	163·0	169·4	176·0	182·7	189·4
	Merc. ...	345·9	344·2	358·8	8·8	26·4	45·3	64·3	82·6	99·1	112·1	117·9	114·0	107·2	100·1	119·9	134·6	151·5	169·2
	Jup. ...	187·4	186·1	184·8	183·7	182·7	181·7	181·2	181·0	180·9	181·5	182·4	183·1	184·5	186·0	187·7	189·4	191·5	193·6
	Sat. ...	68·6	69·5	70·5	71·5	72·7	74·0	75·2	75·6	77·9	79·2	80·5	81·8	83·2	84·3	85·4	86·5	87·2	88·0
1710	Mars ...	335·6	343·3	351·1	358·7	6·3	13·7	21·3	28·3	35·7	42·7	49·6	56·4	63·2	69·7	76·1	82·3	88·5	94·3
	Merc. ...	332·9	346·6	3·7	22·3	41·2	60·0	77·1	91·2	99·0	97·2	90·0	89·6	99·3	113·4	130·3	148·0	165·8	183·0
	Jup. ...	221·4	220·5	219·8	218·0	217·0	215·5	214·2	213·1	212·2	211·9	211·5	211·7	211·9	212·6	213·8	214·8	216·4	218·0
	Sat. ...	82·2	83·0	83·7	84·4	85·5	86·6	87·8	89·0	90·4	91·7	93·0	94·3	95·7	97·0	98·2	99·4	100·3	101·2
1711	Mars ...	113·1	115·3	118·3	122·2	126·3	131·0	135·8	141·2	146·7	152·4	158·3	164·2	170·5	176·8	183·2	189·9	196·5	203·4
	Merc. ...	341·4	359·5	18·5	37·0	54·8	69·7	78·9	79·5	72·3	70·3	79·0	92·0	108·5	125·7	144·8	162·0	177·9	190·1
	Jup. ...	253·9	254·1	253·7	253·4	252·5	251·4	250·4	248·8	247·4	246·2	245·0	244·1	243·5	243·3	243·2	243·7	244·5	245·4
	Sat. ...	95·9	96·3	96·8	97·3	98·3	99·3	100·1	101·3	102·5	103·8	105·2	106·5	107·8	109·1	110·3	111·6	112·6	113·7
	Eng. date ...	Mar 28	Ap 7	Ap 17	Ap 27	My 7	My 17	My 27	Je 6	Je 16	Je 26	Jl 6	Jl 16	Jl 26	Au 5	Au 15	Au 25	S 4	S 14
1712	Mars ...	351·7	359·4	6·9	14·5	21·8	29·2	36·4	43·7	50·5	57·7	64·3	71·1	77·7	84·3	90·8	97·1	103·3	109·3
	Merc. ...	355·7	14·4	32·2	47·7	58·6	61·3	54·9	51·1	57·2	70·2	86·6	104·6	122·9	141·0	157·2	171·0	178·7	177·2
	Jup. ...	284·1	285·5	286·4	287·0	287·4	287·5	287·0	286·3	285·5	284·2	283·0	281·6	280·3	278·9	278·0	277·3	276·7	276·8
	Sat. ...	109·7	109·9	110·0	110·3	111·1	111·8	112·5	113·6	114·7	115·8	117·1	118·4	119·6	120·9	122·2	123·6	124·7	125·9
	Eng. date ...	Mar 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1713	Mars ...	145·1	144·0	144·2	145·6	148·0	151·0	154·7	159·1	163·8	169·1	174·6	180·3	186·2	192·5	198·9	205·4	212·1	219·4
	Merc. ...	9·8	25·9	37·9	42·5	37·2	31·8	36·1	48·3	64·3	82·3	100·9	119·3	136·4	151·1	160·9	162·0	154·9	151·3
	Jup. ...	312·9	314·9	316·7	318·5	319·9	321·1	322·0	322·5	322·8	322·5	321·9	321·2	320·2	318·9	317·5	316·3	314·8	313·7
	Sat. ...	123·6	123·5	123·3	123·3	123·8	124·4	124·9	125·8	126·7	127·6	128·8	130·0	131·3	132·6	133·9	135·1	136·3	137·5
1714	Mars ...	7·1	14·5	21·9	29·1	36·4	43·6	50·5	57·5	64·5	71·1	77·8	84·5	91·0	97·5	104·0	110·4	116·6	122·7
	Merc. ...	16·7	23·1	19·3	12·9	14·8	26·2	41·7	59·7	78·4	96·9	114·7	130·5	142·1	145·8	140·1	134·3	138·2	149·6
	Jup. ...	341·1	343·4	345·7	347·9	350·0	351·9	353·6	355·4	356·7	357·7	358·4	358·9	359·1	358·7	358·2	357·3	356·1	354·7
	Sat. ...	137·4	137·0	136·7	136·5	136·7	137·0	137·2	138·0	138·8	139·4	140·5	141·6	142·8	144·0	145·2	146·5	147·8	149·1
1715	Mars ...	194·6	191·5	187·8	185·2	183·3	182·8	183·5	185·4	188·3	192·0	196·1	200·9	206·3	211·9	217·9	224·1	230·6	237·2
	Merc. ...	1·7	354·4	354·9	4·4	19·4	36·8	54·9	73·9	92·0	109·4	121·4	127·7	124·1	117·4	119·5	129·6	144·4	161·1
	Jup. ...	8·7	11·1	13·5	15·8	18·2	20·6	22·8	24·9	26·9	28·8	30·7	32·2	33·3	34·4	35·0	35·1	35·2	35·0
	Sat. ...	151·0	150·5	150·0	149·4	149·4	149·5	149·4	150·0	150·6	151·0	152·0	152·9	153·9	155·0	156·2	157·4	158·7	160·0
1716	Mars ...	22·1	29·2	36·3	43·3	50·2	57·1	63·9	70·6	77·4	83·9	90·6	97·0	103·5	110·0	116·4	122·7	129·0	135·2
	Merc. ...	335·4	343·0	356·9	14·2	32·8	51·9	70·4	87·6	101·4	109·5	107·9	100·7	100·3	109·1	123·4	140·0	157·8	175·3
	Jup. ...	36·0	38·3	40·6	42·9	45·1	47·7	50·1	52·2	54·5	57·0	59·1	61·2	63·1	64·8	66·4	67·9	68·9	69·7
	Sat. ...	164·4	163·7	163·0	162·4	162·1	161·9	161·7	161·9	162·2	162·5	163·3	164·1	164·9	166·0	167·1	168·2	169·4	170·6
1717	Mars ...	242·0	244·8	246·6	247·5	247·7	246·6	243·9	241·7	239·3	237·6	236·9	237·1	239·6	242·5	246·5	251·0	256·3	261·8
	Merc. ...	335·2	351·5	9·6	28·6	48·0	65·1	80·2	90·0	90·7	83·4	80·9	88·4	102·0	118·5	136·2	154·1	171·6	187·3
	Jup. ...	65·1	65·7	67·6	69·4	71·5	73·6	76·0	78·2	80·6	82·9	85·2	87·5	89·5	91·0	93·0	95·8	97·6	99·3
	Sat. ...	177·4	176·6	175·9	175·1	174·7	174·3	173·8	173·9	174·0	174·0	174·5	175·1	175·8	176·7	177·6	178·6	179·8	181·0
1718	Mars ...	36·7	43·4	50·2	56·9	63·6	70·2	76·8	83·3	89·7	96·4	102·8	109·1	115·6	121·9	128·3	134·6	141·0	147·4
	Merc. ...	347·2	5·8	24·7	42·7	58·5	69·8	72·6	66·4	61·8	68·0	80·4	96·6	114·5	132·7	150·6	166·3	180·5	188·0
	Jup. ...	93·6	94·4	95·3	96·6	98·2	99·8	101·9	103·9	106·0	108·0	111·4	112·4	114·7	116·9	119·1	121·3	123·4	125·7
	Sat. ...	190·0	189·2	188·4	187·6	187·1	186·6	185·9	185·8	185·7	185·4	185·8	186·2	186·0	186·8	188·2	189·1	190·2	191·3
1719	Mars ...	271·3	277·2	283·2	288·9	294·3	299·7	304·3	308·6	312·1	314·9	316·7	316·7	316·0	313·9	311·4	309·3	308·2	308·0
	Merc. ...	1·8	20·0	36·2	48·3	53·4	48·9	42·8	46·9	58·6	74·4	92·2	110·9	129·0	146·0	161·4	170·5	171·5	164·7
	Jup. ...	124·8	124·6	124·7	124·9	125·6	126·5	128·0	129·2	130·9	132·7	134·7	136·7	138·9	141·1	143·0	145·3	147·5	148·9
	Sat. ...	202·4	201·6	200·8	200·1	199·4	198·7	198·0	197·7	197·3	196·9	197·1	197·3	197·5	198·2	198·9	199·5	200·5	201·5
1720	Mars ...	51·4	57·8	64·1	70·5	76·7	83·1	89·4	95·6	102·1	108·4	114·7	121·1	127·3	134·0	140·2	146·5	152·9	159·2
	Merc. ...	14·1	27·5	33·8	30·6	23·9	26·0	36·7	52·2	69·9	88·7	107·1	124·8	140·4	151·7	155·3	149·8	144·1	147·9
	Jup. ...	158·1	157·1	156·2	155·3	155·2	155·5	155·3	156·0	157·0	158·0	159·4	161·0	163·0	164·9	166·6	168·7	171·1	173·2
	Sat. ...	214·4	213·7	213·0	212·3	211·4	210·6	209·9	209·4	209·0	208·5	208·4	208·3	208·3	208·8	209·3	209·8	210·7	211·6
1721	Mars ...	292·7	299·9	307·1	314·3	321·4	328·4	335·4	342·1	348·8	355·1	1·1	6·8	12·1	16·9	20·9	24·2	26·2	27·1
	Merc. ...	14·0	12·9	5·7	5·3	15·0	29·7	47·3	65·9	84·8	103·1	119·4	132·3	138·2	134·6	128·1	129·0	139·5	153·6
	Jup. ...	192·2	190·8	189·4	188·1	187·2	186·3	185·4	185·3	185·2	185·4	186·1	187·0	188·2	189·4	191·1	192·9	194·8	196·6
	Sat. ...	226·0	225·4	224·8	224·2	223·4	222·6	221·9	221·2	220·6	219·9	219·7	219·5	219·3	219·6	219·9	220·2	220·9	221·7

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·6	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260	270		280	290	300	310	320	330	340	350	360
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 3	Mr 13	Mr 23
182·9	189·6	196·4	203·4	210·3	217·3	224·3	231·4	238·7	246·1	**1708**	253·4	260·8	268·3	276·0	283·5	291·3	298·9	306·7	314·5
160·5	176·2	193·2	210·7	227·4	242·6	254·1	258·1	253·0	246·9		249·7	260·2	275·0	292·0	310·1	328·4	345·2	0·3	10·3
148·8	150·8	152·8	154·6	156·2	157·6	158·9	160·2	160·8	161·4		161·6	161·2	160·9	160·0	159·1	157·9	156·7	155·3	154·0
60·2	59·8	59·5	59·0	58·2	57·5	56·7	55·9	55·1	54·3		53·8	53·3	52·8	52·8	52·9	52·9	53·6	54·3	54·9
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D 13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
80·6	85·1	88·9	92·4	94·7	96·1	96·5	95·3	93·1	89·9	**1709**	85·8	82·6	79·8	78·3	78·3	79·7	81·8	84·7	88·5
171·7	189·2	207·4	223·0	235·8	242·1	240·0	232·3	231·5	240·7		254·5	270·9	288·7	306·5	323·8	339·2	350·4	353·2	347·2
172·0	174·2	176·4	178·7	180·8	182·5	184·6	186·2	187·7	189·0		190·2	190·9	191·4	191·7	191·5	191·0	190·4	189·3	188·1
74·7	74·6	74·4	74·4	73·7	73·0	72·5	71·6	70·7	69·9		69·2	68·5	67·7	67·5	67·3	67·1	67·5	67·8	68·3
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
196·1	203·0	210·0	217·1	224·3	231·4	238·7	246·1	253·6	261·2	**1710**	268·8	276·5	284·4	292·0	300·1	307·7	315·5	323·5	331·5
186·9	203·3	217·1	225·5	225·7	218·3	215·3	221·6	234·4	250·3		267·5	285·4	302·8	318·3	330·4	335·2	330·8	324·5	327·4
195·7	197·7	200·1	202·2	204·2	206·7	208·8	210·9	212·6	214·7		216·8	217·9	219·5	220·5	221·3	221·8	222·1	222·3	221·5
88·7	88·8	88·9	89·0	88·7	88·3	87·8	87·0	86·2	85·5		84·7	83·9	83·0	82·6	82·2	81·6	81·7	81·7	81·8
99·9	105·5	110·5	115·3	119·6	123·6	127·1	129·4	130·7	131·1	**1711**	130·3	128·1	125·1	121·8	117·2	114·2	112·2	111·7	112·2
197·7	208·3	210·9	205·1	199·5	203·1	214·8	230·9	246·7	264·2		281·5	297·5	310·5	317·3	314·9	307·8	307·7	317·8	332·3
220·0	221·9	224·1	226·0	228·4	230·6	232·7	235·2	237·3	239·5		241·7	243·7	245·6	247·5	249·3	250·6	251·8	152·4	253·6
102·1	102·5	102·9	103·3	103·1	103·0	102·9	102·2	101·6	100·9		100·0	99·1	98·3	97·7	97·0	96·8	96·2	95·9	95·8
																	Mr 3	Mr 13	Mr 23
210·3	217·2	224·4	231·6	238·9	246·5	253·9	261·6	269·2	277·0	**1712**	284·9	292·6	300·5	308·5	316·3	324·2	332·1	339·9	347·8
195·3	191·4	184·5	185·9	195·8	208·8	226·1	243·6	260·8	277·2		290·9	299·3	299·3	291·4	289·3	297·3	310·3	327·5	345·9
246·7	248·2	249·7	251·7	253·6	255·7	258·0	260·2	262·5	264·9		267·1	269·4	271·7	274·0	276·0	278·3	280·2	281·9	283·4
114·4	115·4	116·1	116·8	116·9	117·0	117·1	116·3	116·2	115·4		115·0	114·2	113·5	112·7	111·9	111·0	110·6	110·2	109·7
S 24	O 4	O 14	O 24	N 3	N 13	N 23	D 3	D13	D 23		Ja 2	Ja 12	Ja 22	F 1	F 11	F 21	Mr 3	Mr 13	Mr 23
115·3	121·2	126·8	132·4	137·6	142·5	147·2	151·5	155·4	158·6	**1713**	161·2	162·7	163·1	162·2	159·9	156·4	152·6	148·9	146·1
169·8	167·6	176·3	189·8	205·8	223·1	240·1	256·9	271·3	281·2		283·2	276·6	272·3	277·5	289·9	305·8	323·7	342·2	0·3
277·1	277·5	278·6	279·6	281·3	282·9	284·7	286·7	288·8	291·1		293·5	295·7	297·8	300·5	302·6	305·0	307·3	309·8	311·9
127·0	127·9	129·7	129·6	130·0	130·3	130·7	130·6	130·4	130·1		129·4	128·7	128·1	127·3	126·6	125·8	125·2	124·5	123·9
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
226·0	233·0	240·3	247·6	255·1	262·7	270·3	277·8	285·8	293·5	**1714**	301·3	309·2	317·0	324·8	332·5	340·3	348·0	355·6	3·1
157·3	170·0	185·6	202·5	220·0	236·7	251·8	263·1	267·7	262·5		256·2	258·8	269·6	284·5	301·8	320·0	338·2	355·6	10·7
312·9	312·2	312·0	312·2	312·5	313·1	314·2	315·6	317·0	318·8		320·8	323·0	325·3	327·6	329·7	332·3	334·7	337·4	339·6
138·8	139·8	140·8	141·8	142·6	143·1	143·6	143·6	143·7	143·7		143·2	142·8	142·3	141·5	140·7	139·9	139·2	138·5	137·7
128·9	134·9	140·8	146·7	152·4	158·2	163·4	168·9	174·1	178·8	**1715**	183·6	187·7	191·6	194·8	197·1	198·9	199·1	198·5	196·3
164·9	181·9	199·3	216·4	232·1	244·7	251·1	248·8	241·1	240·9		250·1	263·8	280·3	298·1	316·4	333·6	349·2	0·7	4·1
353·6	352·0	349·8	349·7	348·8	348·3	348·3	348·4	349·1	350·0		351·0	352·5	354·2	356·1	358·0	0·4	2·7	4·7	6·4
150·3	151·4	152·8	153·6	154·3	155·0	155·8	156·1	156·4	156·7		156·4	156·1	155·9	155·2	154·5	153·8	153·0	152·2	151·4
																	Mr 3	Mr 13	Mr 23
244·1	251·2	258·3	265·7	273·1	280·6	288·3	295·9	303·5	311·1	**1716**	319·4	326·4	333·9	341·5	348·9	356·4	3·7	10·9	18·2
177·9	196·0	212·4	226·0	234·8	234·7	227·7	223·9	230·3	243·8		259·6	277·1	294·9	312·3	328·2	340·2	345·8	341·3	335·3
34·2	33·1	32·1	30·6	29·2	27·9	26·7	25·8	25·0	24·7		24·5	25·0	25·7	26·5	27·9	29·4	31·0	32·9	35·0
161·2	162·3	163·4	164·6	165·5	166·5	267·4	167·8	168·3	168·8		168·7	168·8	168·7	168·1	167·6	167·1	166·3	165·5	164·7
																	Mr 4	Mr 14	Mr 24
141·5	147·7	153·9	159·9	166·0	172·1	178·1	183·9	189·9	195·7	**1717**	201·5	206·9	212·4	217·8	222·8	227·9	232·4	236·5	240·3
192·2	207·0	217·4	220·0	213·7	208·6	212·5	224·1	239·3	256·2		273·7	291·2	307·3	320·4	327·3	324·8	317·8	318·2	327·8
70·3	70·3	70·2	69·9	69·0	67·8	66·3	65·2	63·8	62·4		61·3	60·5	60·0	59·6	59·8	60·1	61·0	62·1	63·4
171·8	173·0	174·2	175·4	176·4	177·4	178·5	179·1	179·7	180·5		180·7	180·9	181·0	180·6	180·3	180·0	179·2	178·4	177·8
267·7	274·1	280·6	287·4	294·3	301·2	308·4	315·4	322·6	329·8	**1718**	336·9	344·3	351·3	358·1	5·3	12·3	19·3	26·2	33·1
189·3	204·5	200·4	193·6	194·7	204·7	219·0	235·4	252·9	270·3		286·7	300·6	308·9	308·8	301·6	299·4	306·9	320·8	337·5
100·3	102·0	102·9	103·3	103·5	103·7	103·1	102·6	101·6	100·3		98·9	97·6	96·3	95·2	94·3	93·4	93·1	92·8	93·3
182·1	183·3	184·5	185·8	186·9	188·0	189·1	189·9	190·7	191·5		192·0	192·3	192·7	192·5	192·3	192·2	191·6	191·0	190·5
153·7	160·1	166·4	172·6	179·1	185·4	191·7	198·1	204·5	210·8	**1719**	217·3	223·6	230·0	236·4	242·8	249·1	255·5	261·7	268·0
186·6	178·0	177·4	185·9	198·9	215·1	232·1	249·6	266·0	280·8		291·1	292·8	286·4	281·8	287·4	299·6	315·7	333·4	352·1
127·6	129·1	130·9	132·2	133·4	134·2	135·1	135·4	135·1	135·0		134·2	133·3	132·0	130·8	129·5	128·2	127·0	125·8	125·0
192·4	193·6	194·8	195·9	197·1	198·1	199·4	200·2	201·2	202·2		202·7	203·7	203·9	203·9	204·0	204·6	203·6	203·6	202·6
																	Mr 3	Mr 13	Mr 23
309·3	311·6	315·2	319·0	323·7	328·8	333·9	339·7	345·4	351·5	**1720**	357·6	3·8	10·0	16·3	22·5	28·9	35·2	41·7	48·0
160·6	169·9	179·0	194·9	211·7	229·0	245·8	261·0	272·5	276·6		272·1	265·5	268·4	278·8	294·2	311·5	329·7	348·2	5·4
151·8	153·8	156·0	157·9	159·7	161·2	162·8	163·9	164·8	165·3		165·6	165·7	165·2	164·7	163·8	162·6	161·3	160·1	158·7
202·5	203·7	204·9	206·0	207·2	208·4	209·5	210·5	211·5	212·6		213·2	213·9	214·7	215·0	215·2	215·5	215·3	214·9	214·7
																	Mr 4	Mr 14	Mr 24
165·8	172·3	178·7	185·4	191·9	198·7	205·2	211·9	218·7	225·6	**1721**	232·5	239·4	246·3	253·4	260·3	267·5	274·6	281·8	289·0
159·2	174·3	191·2	208·6	225·8	241·4	253·9	260·3	257·6	250·2		250·4	259·2	273·4	290·3	308·0	326·4	343·8	359·5	11·1
175·2	177·4	179·8	181·7	183·8	186·0	187·9	189·7	191·2	192·2		193·8	194·8	195·3	195·8	195·8	195·3	194·7	193·9	192·7
212·4	213·5	214·6	215·8	217·0	218·3	219·4	220·5	221·6	222·7		223·6	224·4	225·3	225·7	226·1	226·4	226·5	226·6	226·2
26·6	24·9	22·5	19·6	17·8	16·5	15·8	16·5	18·4	21·0	**1722**	24·0	27·9	32·1	36·8	41·8	46·9	52·3	57·8	63·3
170·4	187·5	205·3	221·6	235·2	243·7	241·6	236·1	233·2	239·8		253·1	269·0	286·6	304·5	322·2	338·1	350·7	356·0	352·4
198·7	201·1	203·1	205·3	207·7	209·7	212·1	214·3	216·1	218·1		219·9	221·5	223·2	224·3	225·2	226·1	226·4	226·5	226·2
222·4	223·5	224·5	225·5	226·7	127·9	229·0	230·1	231·2	232·4		233·4	234·4	235·4	235·9	236·5	237·2	237·3	237·4	237·5

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle.

Venus, A.D. 1765—A.D. 1999

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	A 6	A 16	A 26	S 5	S 15
1722 Mars	...	66·4	72·2	78·0	83·9	90 0	96·0	102·1	108·2	114·3	120·4	126·8	133·0	139·4	145·6	152·1	158·6	164·9	171·6
Merc.	...	348·1	345·7	353·0	7·1	24·3	42 8	62 0	80·5	97·7	111·9	120·1	118·6	110 8	110·2	119·2	132·9	149·6	167·1
Jup.	...	226·0	225·1	224·1	222·8	221·6	220·2	219·0	217 8	217·0	216·1	215·8	215·8	216·2	216·6	217 5	218·7	220·2	221·9
Sat.	...	237·4	237·2	236·9	236·0	235·2	234·5	233·7	233·0	232·3	231·5	231·1	230·7	230·3	230·5	230·6	230·7	231·3	231·9
1723 Mars	...	311·5	319·2	326·8	334 5	342·0	349·6	356·8	4·2	11·5	18·5	25·3	32·1	38·4	44·6	50·7	56·2	60·9	66·2
Merc.	...	332·8	345·2	1·8	20·1	39·1	58·1	75·5	90·6	100·7	101·2	94·1	91·5	98 7	111·8	128 2	145·7	163·7	181·0
Jup.	...	258·1	258·3	258·5	258·0	257·5	256·5	255·3	253·9	252·5	251·3	250·1	248·9	248·3	247·9	247·6	248·0	248·4	249·3
Sat.	...	248·6	248 3	248·1	247·7	247·0	246·4	245·7	245·0	244·2	243·5	242·8	242·2	242·7	241·6	241·5	241·4	241·8	242·2
1724 Mars	...	82·8	88·0	93·0	98·4	103·8	109·4	115·3	121·1	127·1	133·1	139 2	145·5	151·7	158·1	164 5	171·0	177·5	184·2
Merc.	...	339 5	357·4	16·1	35·0	53·0	68·9	80·1	83·5	77·2	72·8	78·3	90·7	106·7	124·3	142·3	160·3	176·5	189·7
Jup.	...	288·1	289·7	290·7	291·7	292·0	292·4	292 1	291·4	290·6	289·7	288·3	287·0	285·6	284·4	283·3	282·3	281·8	281·8
Sat.	...	259·6	259·5	259·4	259·3	258·7	258·1	257·5	256·7	255·9	255·1	254·5	253·9	253·2	253·0	252·8	252·4	252·6	252·9
1725 Mars	...	328·9	336·7	344·5	352·2	359·7	7·3	14·7	22·0	29·3	36·5	43·4	50·2	56·8	63·4	69·9	75·9	81·9	87·7
Merc.	...	353·6	12·0	30·4	46·9	59·5	64·5	59·8	54·0	57·7	69·0	84·9	102·4	120·8	138·9	155·8	170·4	179·9	180·8
Jup.	...	316·9	318·9	320·7	322·6	324 1	325·3	326·5	327·1	327·4	327·5	327·4	326·7	325·6	324 6	323 1	322·0	320 4	319·2
Sat.	...	270 5	270·6	270·8	270·8	270·4	270 0	269·6	268·8	268·0	267·3	266·6	265·9	265·1	264·7	264·2	263·7	263·7	263·8
1726 Mars	...	103·4	108·5	110·4	114·7	119·3	124 4	129·9	135·2	141·8	146·6	152·7	158·6	165·0	171·2	177·7	184·2	190·9	197·8
Merc.	...	7 7	24·6	38·1	45·4	42·2	35·2	37·0	47·1	62·4	80·1	98·6	116 9	134 8	150·1	161·6	165 0	159·7	153·7
Jup.	...	344 9	346·2	349·5	351·8	353·9	356·1	357·9	359·6	0·9	2·3	3·2	3·9	4·1	3·9	3·6	2 7	1·8	0·3
Sat.	...	281·3	281·6	281·9	282·2	282·0	281·7	281·5	280·9	280·2	279·5	278·7	278·0	277·3	276·6	276·0	275·4	275·2	275·1
1727 Mars	...	345·4	353·2	309·8	7·3	15·9	23·3	30·7	37·8	45·0	51·9	58 8	65·5	72·2	78·7	85·3	91·5	97·7	103 8
Merc.	...	18·6	25·1	23·9	18·8	16·3	25·5	40·3	57·6	76·2	94·9	112·9	129·3	142·2	147·9	144·5	137·5	137·4	148·6
Jup.	...	12·4	14·8	17·2	19·6	21·9	23·3	26·6	28·8	30 8	32·8	34·5	36·3	37·7	38·7	39 6	39·9	40 4	40·0
Sat.	...	292·2	292 8	293·2	293·7	293·6	293·6	293·6	293·2	292·6	292·2	291·4	290·6	289·6	288·9	288·3	287·7	287·4	287·1
1728 Mars	...	130·9	131·4	132·9	135·3	138·5	142·4	146·7	151·5	156·7	162·0	167·8	173·6	179·7	186·0	192·4	199·0	205·8	212·5
Merc.	...	6·0	359·2	356·5	3·9	17·7	34·8	53·3	72·3	90 9	108·0	122 0	130·0	128·7	121·4	120·5	129·0	142·7	159·2
Jup.	...	39·9	41·0	44·0	46·6	48·7	51·1	53·5	55·8	58·1	60·4	62·9	64·9	67·0	68·8	70·6	71·8	73·2	74·0
Sat.	...	303 0	303·6	304·6	305 1	305·8	305·5	305·7	305·3	304·9	304·6	304·0	303·4	302·6	301·8	301·0	300·2	299·7	299·2
1729 Mars	...	1·0	8·8	16·2	23·5	30·8	37·9	45·1	52·2	59·1	66·0	73·7	79·3	85·9	92·4	98·9	105·2	111·4	117·7
Merc.	...	337·6	342·8	355·8	12·2	30·4	49 4	68·3	86·2	101·0	110·9	112 2	105 2	102·1	108·5	121·6	138·0	155·5	173·2
Jup.	...	68 0	69·6	71·4	73·3	75·1	77·2	79·5	81·7	84·1	86·4	86·6	91·0	93·2	95·3	97·4	99·4	101·5	103·1
Sat.	...	313·9	314·8	315·7	316·6	317·0	317·5	318·0	317·9	317·6	317·6	317·0	316·5	315·8	315·0	314·2	313·4	312·7	312·0
1730 Mars	...	173·2	170·0	167·8	166·3	166·4	167·7	170·2	173·4	177·2	181·6	186·6	191·9	197·7	203 6	209·8	215·9	222·8	229·7
Merc.	...	334·1	349 6	7·6	25·9	44·9	63·7	78·9	91·1	94·2	88·4	83·5	88·8	100·9	116·7	134·0	152·1	169·8	185·9
Jup.	...	97·6	98·3	99·2	100·5	101·8	103·7	105·3	107·4	109·4	111·5	113·5	115·6	118·2	120·4	122·7	124·9	126·9	129·8
Sat.	...	325·1	326·1	327·2	328·2	328·9	329·5	330·1	330·3	330·4	330·5	330·1	329·7	329·3	328·5	328·1	326·9	326·1	325 3
1731 Mars	...	16·2	23·4	30·6	37·7	44·7	51·8	58·6	65·4	72·3	78·9	85·7	92·2	98·6	105·1	111·7	117·9	124·2	130·3
Merc.	...	345·2	3·8	22·5	40·9	57 3	70·0	75·4	71·0	65·0	68·0	79·4	94·9	112 4	130·6	148·6	165·5	179·0	189 2
Jup.	...	129 2	128·9	128·9	128·9	129·6	130·4	131·4	132·8	134·4	136·1	138·1	140·1	142·2	144·1	146·2	148·7	150·7	152·9
Sat.	...	336 4	337·5	338·6	339·8	340·7	341·5	342·4	342·8	343·2	343·3	343·4	343·2	343·0	342·3	341·7	341·1	340·3	339·5
1732 Mars	...	226 1	226·4	225·4	223·6	220·8	217·9	215·5	213·9	213·7	214·4	216·5	219·7	223·5	228·1	233·1	238·7	244·7	250·9
Merc.	...	359·9	15·1	35·0	48·8	56·0	53·6	46·5	47·5	57·8	73·0	90 3	108·8	127·0	144·6	159·9	171·0	174·7	168·9
Jup.	...	162·7	161·6	160·6	159·7	159 3	159·3	159·2	160·9	160·7	161·6	162·9	164·5	166·3	168·1	170·1	172·2	174 1	176·2
Sat.	...	347·9	349·1	350 4	351·6	352·7	353·8	354·8	355·4	356·0	356·7	356·7	356·9	356·9	356·5	356·1	355·5	354·7	353·9
1733 Mars	...	30·9	38·0	44·7	51·5	58·3	65·1	71·8	78·3	84·7	91·4	97·9	104·4	110·8	117·3	123·6	129·9	136·2	142·6
Merc.	...	12 6	27·4	37 6	35·4	28·2	27·1	36 4	50·6	68·5	86·3	105·0	123·0	139·3	152·1	157·6	154·8	147·3	148·8
Jup.	...	196·8	194·5	194·3	192·9	191·7	190·5	189·8	189·4	189·4	189·6	189·9	190·8	191·0	192·9	195·6	196·2	198·1	200·1
Sat.	...	359·6	0·9	2·2	3·5	4·7	5·9	7·0	7·8	8·7	9·6	9·9	10·3	10·7	10·5	10·2	10·0	9·4	8·6
1734 Mars	...	261·1	266·4	271·2	275·2	279·3	282·9	285·8	289·0	288·1	287·5	286·0	283·1	278·5	279·3	278·5	279·7	281·9	285·0
Merc.	...	15·3	17·0	10 1	7 1	14·7	28·2	45·6	63·6	82·6	101·4	118·1	132·0	140·0	138·8	132·3	130·3	138·8	152·2
Jup.	...	203·5	229 8	228·8	227·9	226·6	225·2	223 9	222·7	221·6	220·8	220·3	220·0	220·3	220·6	221·5	222·6	224·0	225·3
Sat.	...	11·6	12·3	14·2	15·6	16·4	18·2	19·5	20·5	21·5	22·6	23·2	23·9	24·5	24·6	24·6	24·6	24·2	23·8
1735 Mars	...	45·7	52·1	58·7	65·1	71·6	78·0	84·5	90·8	97·3	103 7	110·1	116·3	122·7	129·1	135·5	148·8	148·2	154·6
Merc.	...	353·0	348 1	353·3	6·1	22·5	40·8	59·9	78 6	96·2	111·1	121·1	122·4	115·6	112·4	118·6	131·6	147·6	164·9
Jup.	...	262·4	262·7	263 0	262·7	262 1	261 4	260·2	259·0	257·7	256·3	255·1	254·0	253·2	252·4	252·3	252·5	252·7	253·3
Sat.	...	24·0	25·3	26·6	27·8	29·2	30·6	32 0	33·2	34·4	35·5	36·4	37·2	38·0	38·4	38·7	39·1	38·8	38·7
1736 Mars	...	284·9	291·7	298·4	305·3	312·0	318·6	325·0	331·2	337·1	342·9	347·9	352·4	356·2	359·2	1·0	1·4	0·6	358·4
Merc.	...	332·3	344·2	0·0	17·9	36·8	55·8	74·0	89·9	101·4	104·9	99·1	94·1	98·8	110·9	126·4	143·8	161·5	179·1
Jup.	...	292·1	293·8	294·9	295·9	296 7	296·8	297·0	296·8	295·8	295·0	293·7	292·3	290·9	289·7	288·6	287·6	286·8	286·4
Sat.	...	36·4	37·7	39·0	40·4	41·7	43·0	44·4	45·7	47·0	48·2	49·3	50·4	51·5	52·1	52·6	53·2	53·8	53·2

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260	270		280	290	300	310	320	330	340	350	360
S 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24		Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
178·2	184·8	191·4	198·2	205·0	212·0	218·8	225·9	233·0	240·2	**1723**	247·5	254·8	262·1	269·5	277·2	284·6	292·2	299·8	307·6
184·7	201·5	218·0	226·5	229·0	222·4	217·4	221·8	233·1	249·3		265·6	283·7	300·7	317·0	350·3	337·6	335·6	328·1	328·2
223·6	225·5	227·5	229·6	231·8	234·0	236·5	238·5	240·8	243·0		245·4	247·3	249·5	251·3	253·1	254·5	256·0	257·0	257·8
232·5	233·4	234·4	235·4	236·5	237·7	238·8	240·0	241·1	242·3		243·3	244·3	245·4	246·1	246·9	247·7	248·0	248·2	248·6
																	Mr 3	Mr 13	Mr 23
70·6	74·3	77·2	79·1	80·2	79·8	78·2	75·3	71·8	68·2	**1724**	65·6	63·9	63·5	64·4	66·2	69·1	72·4	76·4	80·6
196·6	208·7	213·5	209·3	202·5	203·7	213·5	228·0	243·9	262·2		279·6	296·2	310·1	319·2	318·8	312·3	309·7	317·2	330·7
250·5	252·0	253·6	255·4	257·2	259·3	261·4	263·8	266·0	268·3		270·6	273·0	275·2	277·7	279·9	282·0	283·9	285·9	287·4
242·6	243·6	244·4	245·2	246·4	247·5	248·6	249·8	251·0	252·1		253·2	254·3	254·4	256·2	257·1	258·0	258·5	258·9	259·5
																	Mr 4	Mr 14	Mr 24
191·0	197·8	204·7	211·7	218·7	225·9	233·1	240·4	247·8	255·3	**1725**	262·8	270·3	278·0	285·8	293·5	301·4	309·2	317·1	324·9
197·2	195·4	187·9	186·7	194·9	208·1	224·2	241·5	259·0	275·6		290·2	300·7	302·5	295·8	291·6	297·2	309·3	325·7	343·5
281·6	281·9	282·7	283·9	285·1	286·6	288·4	290·5	292·6	294·8		296·9	299·4	301·7	303·9	306·5	308·9	311·2	313·5	315·7
253·1	253·8	254·5	255·3	256·3	257·3	258·3	259·5	260·7	261·9		263·1	264·3	265·4	266·3	267·3	268·3	268·9	269·6	270·2
93·2	98·3	103·0	107·5	111·0	114·1	116·6	117·7	118·2	117·2	**1726**	114·9	111·7	107·8	104·1	101·2	99·4	99·1	100·0	102·1
173·7	170·0	176·3	188·3	203·9	220·9	238·3	255·3	270·4	282·0		285·7	280·9	274·9	278·0	288·7	304·0	321·4	339·9	358·3
318·2	317·5	317·1	316·7	317·3	317·8	318·5	319·8	321·3	323·1		325·0	326·9	329·1	331·3	333·6	336·1	338·5	340·9	343·3
263·8	264·4	265·0	265·5	266·5	267·3	268·3	269·5	270·7	271·8		273·8	274·2	275·3	276·4	277·5	278·6	279·4	280·3	281·1
205·1	211·5	218·6	225·6	233·0	240·4	247·8	255·2	263·0	270·8	**1727**	279·4	286·5	294·1	302·0	309·9	317·7	325·7	333·5	341·3
157·5	168·7	183·6	200·4	217·8	234·8	250·6	263·1	270·3	267·0		259·7	259·7	268·5	282·8	299·7	317·8	336·1	353·8	9·5
359·3	357·9	356·6	355·2	354·3	353·8	353·4	353·5	353·8	354·6		355·7	356·8	358·3	0·1	2·3	4·2	6·5	8·7	11·1
275·0	275·3	275·8	276·1	276·9	277·8	278·6	279·7	280·8	281·9		283·1	284·3	285·4	286·6	287·9	289·0	289·9	290·8	291·8
																	Mr 3	Mr 13	Mr 23
109·5	115·5	120·8	126·0	131·0	135·7	139·9	143·5	146·7	148·8	**1728**	150·2	150·2	149·0	146·5	142·8	139·3	135·7	132·7	131·4
163·3	179·9	197·3	214·4	230·7	244·5	252·8	252·5	244·9	242·5		249·3	262·4	278·5	296·2	314·3	332·0	348·2	1·0	6·8
39·6	38·7	37·5	36·4	34·8	33·5	32·2	31·2	30·2	29·7		29·6	29·7	30·2	31·1	32·1	33·3	35·0	36·7	38·8
286·5	286·7	286·8	287·0	287·7	288·4	289·0	290·1	291·0	292·1		293·3	294·5	295·6	296·8	298·0	299·3	300·4	301·5	302·5
																	Mr 4	Mr 14	Mr 24
219·5	226·6	233·8	241·1	248·5	256·1	263·7	271·4	279·7	286·9	**1729**	294·8	302·7	310·6	318·3	326·2	334·1	341·8	349·4	357·2
176·6	194·0	210·8	225·2	235·5	237·6	231·6	226·4	230·6	242·4		257·8	275·0	292·8	310·4	327·0	340·3	348·0	346·1	339·0
74·2	75·0	75·2	74·7	74·0	73·1	71·8	70·0	69·2	67·9		67·5	65·5	64·9	64·6	64·4	64·8	65·2	66·2	67·2
298·7	298·6	298·5	298·5	299·0	299·4	299·9	300·8	301·7	302·6		303·8	305·0	306·1	307·3	308·5	309·8	311·0	312·2	313·4
123·7	129·6	135·4	142·1	146·7	152·2	157·5	162·2	167·1	171·5	**1730**	175·3	178·8	181·5	183·2	184·2	183·7	181·8	178·6	174·9
190·5	205·8	217·9	223·4	218·2	210·8	212·9	222·9	237·4	253·9		271·6	289·3	305·9	320·1	328·9	329·2	321·9	319·7	327·0
101·6	105·8	106·7	107·6	107·9	108·2	107·9	107·2	106·5	105·3		104·0	102·7	101·3	100·0	98·9	98·0	97·7	97·2	97·5
311·3	311·1	310·9	310·5	310·8	311·0	311·4	312·2	312·9	313·6		314·7	315·8	317·0	318·2	319·4	320·7	321·9	323·1	324·4
236·7	248·7	251·0	258·2	266·7	273·2	280·8	288·6	296·3	304·0	**1731**	311·8	319·5	327·1	334·8	342·6	350·0	357·5	5·0	12·3
199·2	206·2	204·8	197·1	195·7	204·0	217·3	233·5	250·7	268·2		285·0	299·8	310·2	312·3	306·1	301·4	307·2	319·4	335·7
131·0	132·7	134·4	135·8	137·3	138·2	138·9	139·5	139·5	139·3		138·9	137·9	136·8	135·5	134·2	132·8	131·6	130·5	130·7
324·6	324·2	323·7	323·2	323·3	323·4	323·4	323·9	324·5	325·2		326·2	327·2	328·2	329·5	330·6	331·9	333·2	334·5	335·8
																	Mr 3	Mr 13	Mr 23
136·5	142·6	148·7	154·7	160·7	166·5	172·4	178·1	183·8	189·4	**1732**	194·7	199·7	204·8	209·6	213·7	217·7	221·2	223·7	225·6
190·0	183·0	179·4	185·4	197·6	213·0	230·0	247·4	264·5	279·7		291·3	295·7	290·8	284·7	287·5	298·6	313·9	331·4	350·0
155·2	157·3	159·4	161·4	163·1	164·8	166·2	167·6	168·5	169·2		169·6	169·9	169·9	169·2	168·3	167·1	166·0	164·7	163·4
338·6	337·9	337·3	336·7	336·4	336·2	336·1	336·4	336·8	337·2		338·1	339·0	339·8	340·9	342·1	343·3	344·6	345·9	347·1
																	Mr 4	Mr 14	Mr 24
257·5	264·1	271·1	278·1	285·3	292·7	300·2	307·5	314·8	322·2	**1733**	339·6	337·0	344·6	351·7	359·0	6·1	13·1	20·3	27·2
168·2	167·0	177·9	192·9	209·6	226·9	244·1	259·8	272·5	299·0		276·2	269·1	268·9	278·5	292·9	309·5	327·8	345·9	4·1
178·4	180·9	182·8	185·2	187·3	189·4	191·3	193·0	194·8	196·4		197·3	198·6	199·2	199·9	199·8	199·7	199·4	198·4	197·4
353·1	352·3	351·5	350·7	350·3	349·8	349·5	349·6	349·8	349·9		350·5	351·2	351·8	352·9	354·0	355·1	356·3	357·6	358·9
148·8	155·2	161·3	167·7	173·8	180·2	186·4	192·5	198·6	204·9	**1734**	211·1	217·3	223·4	229·4	235·4	241·4	247·0	252·8	258·3
158·2	172·6	189·1	206·5	223·8	240·2	253·6	262·0	261·6	254·4		251·5	258·5	271·9	288·1	304·0	324·1	342·0	358·3	11·6
202·2	204·4	206·3	208·5	210·7	213·2	215·1	217·3	219·6	221·5		223·3	225·1	226·6	227·2	229·4	229·9	230·5	230·7	230·8
7·9	7·1	6·3	5·4	4·9	4·2	3·6	3·5	3·3	3·2		3·6	4·1	4·5	5·4	6·3	7·1	8·3	9·6	10·8
289·2	293·8	298·1	304·6	310·5	316·6	322·9	329·5	335·9	342·4	**1735**	349·1	355·8	2·4	9·1	15·7	22·3	29·0	35·5	42·1
168·5	184·8	203·3	220·0	234·6	244·7	246·7	240·3	235·4	249·3		251·7	267·5	284·3	302·4	320·8	336·7	350·5	358·3	356·7
227·1	249·0	231·0	233·1	235·4	237·5	239·9	242·1	244·4	246·5		248·8	250·9	252·9	254·9	256·9	258·5	259·9	261·0	263·0
23·2	22·4	22·9	20·8	20·0	19·3	18·5	17·9	17·5	17·2		17·3	17·5	17·7	18·4	19·2	19·9	21·0	22·1	23·2
																	Mr 3	Mr 13	Mr 23
161·0	167·4	174·1	180·3	186·9	193·4	200·0	206·5	213·2	219·7	**1736**	226·5	233·3	240·0	246·8	253·5	260·4	267·4	274·3	281·2
182·7	199·7	214·9	226·6	231·4	227·0	220·3	222·0	232·2	246·7		263·5	281·2	298·9	315·6	329·8	339·0	339·4	332·4	330·1
254·4	255·7	257·4	259·1	261·1	263·1	265·0	267·3	269·5	271·9		274·1	276·4	278·8	281·1	283·6	285·7	287·7	289·6	291·6
38·3	37·7	37·0	36·2	35·4	34·6	33·7	33·1	32·5	31·9		31·7	31·6	31·5	32·1	32·4	32·9	33·9	34·8	35·8
																	Mr 4	Mr 14	Mr 24
356·6	353·5	351·9	351·5	352·3	354·0	356·5	359·8	3·6	7·9	**1737**	12·5	17·5	22·9	28·3	33·7	39·5	45·5	51·3	57·1
195·2	208·3	215·4	213·4	205·9	201·5	213·0	226·6	242·7	260·0		277·5	294·4	309·5	319·9	322·5	316·3	311·7	316·7	329·4
286·2	286·6	287·1	288·0	289·4	290·6	292·4	294·2	296·3	298·5		300·7	302·9	305·2	307·8	310·2	312·3	315·7	317·2	319·6
53·3	52·8	52·3	51·8	51·0	50·2	49·3	48·6	47·8	47·0		46·7	46·4	45·9	46·1	46·3	46·6	47·3	48·0	48·7

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Srav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle.
Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
	Eng. date ...	Mr 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16	Au 26	S 5	S 15
1737	Mars ...	60·4	66·5	72·5	78·6	84·7	90·8	97·1	103·3	109·4	115·8	121·9	128·3	134·6	141·0	147·4	153·7	160·3	166·7
	Merc. ...	337·8	355·8	13·8	32·8	51·3	67·9	80·6	86·4	82·1	75·8	78·7	89·7	104·6	122·2	140·3	158·3	174·8	189·3
	Jup. ...	320·7	322·7	324·7	326·8	328·3	329·7	331·0	331·8	332·2	332·4	332·4	332·0	331·2	330·3	329·0	327·5	326·2	324·7
	Sat. ...	49·3	50·7	51·9	53·0	54·3	55·6	56·8	58·3	59·7	61·0	62·2	63·4	64·7	65·4	66·3	67·1	67·5	68·1
1738	Mars ...	304·4	311·8	319·4	326·8	334·4	341·8	349·2	356·3	3·3	10·3	16·8	23·3	29·5	35·4	41·1	46·1	50·7	54·8
	Merc. ...	351·3	10·2	28·5	45·6	59·6	66·7	64·7	57·6	58·5	69·2	83·1	100·3	118·5	137·0	154·0	169·4	180·7	183·8
	Jup. ...	348·6	351·0	353·3	355·6	357·7	359·9	2·1	3·8	5·3	6·8	7·8	8·6	8·8	9·1	8·7	8·3	7·3	6·2
	Sat. ...	62·5	63·5	64·7	65·7	67·0	68·3	69·5	70·9	72·2	73·5	74·8	76·1	77·4	78·5	79·5	80·5	81·1	81·7
1739	Mars ...	76·3	81·6	87·0	92·7	98·5	104·1	110·0	116·0	121·9	128·1	134·2	140·5	146·8	153·2	159·5	166·1	172·5	179·1
	Merc. ...	6·0	23·2	37·8	46·7	46·5	39·4	38·3	46·6	61·0	78·1	96·6	114·9	132·9	148·9	161·7	167·4	164·0	157·0
	Jup. ...	15·9	18·4	20·8	23·2	25·5	27·9	30·2	32·6	34·8	36·6	38·7	40·3	41·8	43·1	44·0	44·8	45·1	45·1
	Sat. ...	75·9	76·8	77·6	78·5	79·6	80·9	82·1	83·3	84·7	85·9	87·3	88·7	90·1	91·2	92·3	93·5	94·4	95·2
1740	Mars ...	322·2	330·0	337·8	345·6	353·0	0·6	8·1	15·4	22·6	29·7	36·7	43·4	50·2	56·7	62·8	68·9	74·8	80·3
	Merc. ...	16·0	26·6	28·1	21·2	18·2	25·1	38·9	55·6	73·9	92·6	110·9	127·8	142·0	149·6	148·8	141·2	140·1	147·9
	Jup. ...	43·8	46·0	48·1	50·2	52·3	54·9	57·2	59·5	61·9	64·2	66·5	68·7	70·7	72·4	74·1	75·8	77·2	78·2
	Sat. ...	89·5	90·1	90·7	91·3	92·4	93·4	94·5	95·3	96·9	98·2	99·6	100·9	102·3	103·5	104·7	106·0	107·0	108·1
1741	Mars ...	95·0	98·8	103·2	108·0	113·2	118·3	124·0	129·4	135·3	141·2	147·1	153·4	159·6	165·9	172·3	178·8	185·7	192·3
	Merc. ...	9·6	4·2	359·0	4·1	16·6	32·9	51·1	70·0	89·0	105·9	121·4	131·6	132·5	125·2	122·3	128·8	141·3	157·1
	Jup. ...	72·1	73·4	75·2	76·9	78·9	81·0	83·0	85·2	87·6	89·9	92·1	94·5	96·7	99·0	101·0	103·2	105·0	106·8
	Sat. ...	103·3	103·6	103·9	104·3	105·1	106·0	106·8	107·9	109·0	110·5	111·5	112·8	114·1	115·4	116·7	118·0	119·1	120·2
1742	Mars ...	339·1	346·5	354·6	2·3	9·9	17·3	24·6	31·9	39·1	46·2	52·9	59·7	66·5	73·0	79·4	85·6	91·9	97·9
	Merc. ...	340·8	343·0	354·8	10·3	28·2	47·1	66·1	84·2	100·0	111·8	115·4	109·7	104·4	108·4	120·8	136·1	153·3	171·0
	Jup. ...	101·9	102·5	103·2	104·2	105·6	106·9	108·8	110·8	112·7	114·8	117·0	119·0	121·2	123·6	125·6	127·9	130·2	132·1
	Sat. ...	117·2	117·2	117·2	117·3	118·0	118·7	119·2	120·2	121·2	122·2	123·5	124·8	126·0	127·3	128·6	129·9	131·1	132·3
1743	Mars ...	119·1	120·7	123·3	126·5	130·2	134·7	139·6	144·7	150·1	155·7	161·6	167·4	172·8	179·9	186·5	193·0	199·8	206·7
	Merc. ...	333·3	348·1	5·5	24·4	43·4	61·8	78·3	91·3	97·0	93·2	86·7	88·9	99·9	114·9	132·1	150·0	167·7	184·3
	Jup. ...	133·8	133·3	133·1	133·2	133·5	134·3	135·4	136·5	138·0	139·6	141·4	143·4	145·4	147·5	149·6	151·8	154·0	156·2
	Sat. ...	131·1	130·8	130·5	130·4	130·8	131·1	131·6	132·4	133·2	134·0	135·2	136·3	137·5	138·8	140·0	141·3	142·5	143·8
1744	Mars ...	355·2	2·6	10·3	17·7	25·4	32·4	39·7	46·7	53·7	60·5	67·5	74·2	80·8	87·3	93·7	100·0	106·2	112·4
	Merc. ...	343·1	1·5	20·3	38·9	56·1	70·1	77·5	75·9	68·7	69·0	78·7	93·3	110·3	126·8	146·6	163·7	178·9	189·9
	Jup. ...	167·4	166·1	165·1	164·2	163·5	163·4	163·3	163·5	164·5	165·4	166·6	168·1	169·7	171·5	173·4	175·5	177·5	179·7
	Sat. ...	144·8	144·3	143·8	143·5	143·6	143·8	143·8	144·4	145·1	145·7	146·7	147·7	148·8	150·0	159·2	152·4	153·7	154·0
1745	Mars ...	154·0	152·2	151·6	152·1	153·8	156·4	159·8	163·9	168·3	173·3	178·6	184·2	190·0	196·3	202·5	209·1	215·9	227·7
	Merc. ...	357·7	15·6	33·5	48·4	57·6	58·0	50·9	48·9	57·4	71·6	88·4	106·5	124·9	142·6	158·6	171·3	177·1	173·4
	Jup. ...	201·4	200·2	199·4	197·5	196·4	195·4	194·3	193·8	193·6	193·6	193·9	194·6	195·5	196·7	198·3	199·8	201·5	203·5
	Sat. ...	158·2	157·6	157·0	156·4	156·2	156·2	156·1	156·4	156·8	157·2	158·1	159·0	159·8	160·9	162·0	163·1	164·3	165·6
1746	Mars ...	10·4	17·8	25·1	32·3	39·5	46·6	53·5	60·4	67·3	73·9	80·6	87·3	93·9	100·3	106·6	113·0	119·3	125·5
	Merc. ...	11·3	26·9	37·5	39·2	32·6	29·4	36·0	49·4	66·0	84·0	102·7	121·0	137·8	151·8	159·2	158·7	151·1	149·9
	Jup. ...	235·0	234·0	233·4	232·7	231·4	230·1	228·7	227·6	226·3	225·5	224·8	224·4	224·4	224·8	225·5	226·4	227·6	229·0
	Sat. ...	171·4	170·7	170·0	169·3	169·0	168·6	168·2	168·4	168·6	168·7	169·4	170·1	170·8	171·8	172·9	173·9	175·1	176·3
1747	Mars ...	206·7	204·4	201·3	198·2	195·1	193·4	193·0	194·0	195·9	198·9	202·5	206·8	211·8	217·0	222·0	228·9	235·3	242·0
	Merc. ...	16·4	20·7	15·0	9·9	14·4	27·1	43·3	61·5	80·5	98·9	116·3	131·3	141·5	142·8	136·0	132·1	138·1	150·9
	Jup. ...	266·4	267·2	267·4	267·3	267·0	266·4	265·4	264·2	262·9	261·6	260·3	259·1	258·1	257·3	257·0	256·8	257·0	257·7
	Sat. ...	184·3	183·5	182·7	181·9	181·4	180·9	180·3	180·3	180·3	180·2	180·6	181·1	181·6	182·5	183·4	184·3	185·4	186·6
1748	Mars ...	25·3	32·3	39·2	46·3	53·0	59·9	66·7	73·3	80·0	86·6	93·3	99·6	106·1	112·6	118·9	125·4	131·7	137·8
	Merc. ...	357·7	351·2	353·8	5·2	20·7	38·6	57·3	76·0	93·9	110·2	121·6	125·5	120·2	114·7	118·7	130·4	145·7	162·8
	Jup. ...	296·1	297·8	299·1	300·3	301·3	301·6	301·8	301·4	300·9	300·2	299·2	297·9	296·6	295·2	294·0	292·9	292·0	291·3
	Sat. ...	196·7	195·9	195·1	194·4	193·7	193·1	192·4	192·2	192·0	191·8	191·9	192·2	192·5	193·2	194·0	194·7	195·8	196·8
1749	Mars ...	249·4	253·2	256·6	259·1	260·8	261·3	260·9	259·0	257·0	254·8	252·1	250·5	251·5	253·1	255·9	259·4	264·0	269·0
	Merc. ...	334·2	343·3	358·2	16·0	34·7	53·7	72·2	88·8	101·7	107·6	103·7	97·4	99·0	109·9	124·6	141·7	159·5	177·1
	Jup. ...	324·4	326·6	328·8	330·6	332·4	334·0	335·2	336·3	337·0	337·4	337·7	337·2	336·7	335·7	334·5	333·2	331·8	330·4
	Sat. ...	208·9	208·1	207·4	206·6	205·9	205·0	204·4	204·0	203·6	203·2	203·2	203·2	203·8	203·9	204·5	205·0	205·9	206·8
1750	Mars ...	39·9	46·5	53·1	59·7	66·5	73·0	79·5	86·1	92·5	98·9	105·3	111·7	118·2	124·5	130·9	137·3	143·6	152·0
	Merc. ...	338·5	353·4	11·7	30·6	49·3	66·4	80·5	88·6	86·8	79·6	79·6	88·9	102·7	120·2	138·2	153·0	172·8	188·3
	Jup. ...	352·1	354·5	356·9	359·3	1·5	3·8	5·7	7·7	9·4	10·9	12·2	13·1	13·7	14·1	13·9	13·6	13·0	11·9
	Sat. ...	220·7	220·0	219·3	218·7	217·9	217·1	216·3	215·7	215·1	214·6	214·4	214·4	214·3	214·6	214·9	215·4	216·2	217·1
	Eng. date ...	Mr 30	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16
1751	Mars ...	276·4	282·7	289·0	295·8	301·3	307·1	312·5	317·7	322·4	326·5	330·0	332·2	333·3	332·7	331·1	328·7	328·3	324·7
	Merc. ...	349·1	7·9	26·5	43·9	59·0	68·7	69·2	62·1	60·0	67·8	81·6	98·3	116·3	134·6	152·2	167·7	180·7	186·4
	Jup. ...	19·9	22·3	24·7	27·1	29·5	31·9	34·2	36·6	38·7	40·8	42·7	44·4	46·2	47·4	48·5	49·4	49·8	49·9
	Sat. ...	232·2	231·7	231·3	230·5	229·7	228·9	228·2	227·5	226·8	225·9	225·8	225·4	225·2	225·4	225·6	225·8	226·5	227·1

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Aslea.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999.

180	190	200	210	220	230	240	250	260	270		280	290	300	310	320	330	340	350	360
											Ja 3	Ja 13	Ja 23	F 2	F 12	F 22	Mr 4	Mr 14	Mr 24
8 25	O 5	O 15	O 25	N 4	N 14	N 24	D 4	D 14	D 24										
173·1	179·8	186·5	193·2	199·9	206·7	213·5	220·4	227·4	234·4	**1738**	241·5	248·7	256·0	263·3	270·5	278·1	285 5	292·9	300·5
198·5	199·2	192·0	188·4	194·6	206·7	222·1	239·4	256·8	273·9		289·2	300·8	305·5	300·3	294·2	297·4	308 3	323·8	341·4
328·7	322·8	322·3	321·8	321·9	322·3	323·2	324·2	325·6	327·2		328 8	330·8	332·9	335·1	337·5	339·8	342·2	344·7	347·1
68·1	67·9	67·6	67·4	68·7	66·7	65·3	64·4	63·6	62·7		62·1	61·5	60·8	60·7	60·6	60·5	61·0	61·5	62·0
57·9	60·2	61·4	61·4	60·1	57·4	54·6	51·4	48·8	47·3	**1739**	46·8	47·8	49·7	52·4	55·8	59·6	63·9	68·7	78·6
178·2	172·5	176·2	187·2	202·1	219·0	236·2	253·3	269·1	281·9		288·5	285·6	278·5	278·8	287·8	302·2	319·4	337·7	356·3
5·0	3·6	2·3	0·7	359·7	359·1	358·4	358·4	358·5	359·1		359·9	1·1	2 6	4·4	6·1	8·1	10·2	12·6	14·9
82·3	82·3	82·3	82·3	81·8	81·3	80·8	79 9	79·1	78·3		77·5	76 8	76·0	75·7	75·3	74·9	75·1	75·4	75·5
																	Mr 3	Mr 13	Mr 23
185·7	192·5	199·4	206·2	213·3	220·4	227·4	234·7	242·0	249·4	**1740**	256·6	264·2	271·8	279·4	287·1	294·8	302·6	310·5	318·2
158·0	167·6	182·1	198·4	215·7	232·9	249·1	262·8	271·2	270·6		263·4	261·1	268·0	281·4	297·7	315·8	334·1	352·2	8·5
44·7	44·1	43·1	41·9	40·5	38·7	37·9	36·5	35·7	34·9		34·6	34·5	34 8	35·6	36·6	37·6	39·1	40·8	42·5
96·0	96·3	96·5	96·8	96·6	96·3	96·1	95·3	94·5	93·8		93·1	92·2	91·3	90·8	90·2	89·5	89·5	89·4	89·3
																	Mr 4	Mr 14	Mr 24
85·4	90·4	94·5	98·1	101·2	103·4	104·5	104·4	103·2	100·4	**1741**	96·7	93·0	89·7	87·0	86·1	86·2	87 6	90·0	93·0
161·7	177·9	195·2	212·5	229·0	243·5	253·7	255·7	249·3	244·7		249·2	261·1	276 6	294·0	312·2	330·0	346·9	0 8	9·0
79·1	79·4	79·7	79·4	79·0	78·1	77·0	75·7	74·5	73·2		71·9	70 9	70·0	69·4	69·4	69·3	69·7	70·5	71·3
109·0	109·5	110·1	110·6	110·7	110·6	110·6	110·1	109·5	108·9		108·1	107·3	106·5	105·8	105·0	104·2	103 9	103·6	103·2
199·1	206·0	213·0	220·3	227·4	234·6	242·0	249·4	257·0	264·5	**1742**	272.3	280·0	287·7	295·6	303·4	311·4	319·3	327·1	335·1
173·9	191·5	209·0	224·1	235·9	240·1	236·3	229·4	221·1	241·4		255·9	272·6	290·5	308·3	325·4	339·8	349·5	350·2	348·4
108·3	109·8	110·8	111·7	112·2	112·5	112·3	111·9	111·2	110·2		109·1	107·7	106·4	105·3	104·0	103·0	102·4	102·1	102·0
121·4	122·2	122·9	123.7	124·0	124·2	124·5	124·2	123·9	123·6		122·9	122·2	121·4	120·6	119·9	119·1	118·5	117·9	117·3
103·6	109·2	114·4	119·3	124·0	123·1	131·8	134·6	136·8	137·9	**1743**	138·0	136·7	133·7	130·3	126·3	122·9	120·3	118·7	118·5
188·6	204·5	217·5	224.3	222·7	214·8	213·8	221·4	235·8	251·9		269 3	287·1	304·2	319·3	329·9	332·8	326·5	321·8	326·6
134·1	136·0	137·9	139·3	140·7	142·0	142·8	143·3	143·6	143·5		143·1	142·5	141·5	140·4	139·0	137·9	136·4	135·3	134·4
133·4	134·4	135·3	136·3	136·8	137·4	137·8	137·7	137·7	137·5		137·0	136·3	135·8	135·0	134·2	133·4	132·7	132·0	131·3
																	Mr 3	Mr 13	Mr 23
213·6	220·5	227·6	234·9	242·4	249·8	257·4	265·0	272·6	280·5	**1744**	288·2	296·2	304·1	311·9	319·8	327·7	335·6	343·3	351·0
193·6	207·6	208·3	200·7	197·5	203·3	216 0	231·6	248·6	266·1		283·2	298·7	310 6	315·3	310·7	304·4	307·1	318·6	333·9
158·4	160·6	162·6	164·6	166·5	168·1	169·6	171·1	172·1	173·1		173·6	173·9	173·8	173·3	172·8	171·7	170·6	169·3	168·1
145·1	146·1	147·2	148·2	149·2	149·6	150·4	150·5	150·6	150·8		150·4	150·0	149·7	149·0	148·2	147·5	146·7	145·9	145·1
																	Mr 4	Mr 14	Mr 24
118·4	124·3	130·0	135·6	141·0	146·1	151·0	155·6	159·7	163·4	**1745**	166·6	168·8	170·2	170·2	168·9	166·5	163·0	159·1	153·3
193·2	187·5	181·8	185·2	196·6	211·4	227·7	245·4	262·6	278·5		291·8	297·9	295·3	288·0	288·2	297·8	311·9	329·4	347·8
181·9	184·1	186·2	188·4	190·6	192·7	194·6	196·6	198·3	199·9		201·4	202·3	203·2	203·8	204·1	204·0	203·7	203·1	202·1
156·2	157·3	159·0	159·5	160·4	161·2	162·1	162·5	162·9	163·2		163·1	163·0	162·8	162·2	161·6	161·0	160·2	159·4	158·5
229·6	236·7	243 9	251·4	258·8	266·5	274·1	281·6	289·5	297·3	**1746**	305·1	312·9	320·7	328·5	336·1	343·9	351·4	359·1	6·5
166·5	167·2	177·1	191·1	207·5	224·9	242·0	258·4	272·0	280·4		280·3	272·7	270·4	277·9	291·2	307·5	325·6	344·1	2·2
205·6	207·6	209·7	212·0	214·2	216·4	218·6	220·8	222·9	225·0		227·0	228·7	230·3	231·8	233·1	234·0	234·8	235·1	235·1
166·8	168·0	169·3	170·4	171·4	172·4	173·4	174·0	174·5	175·1		175·2	175·3	175·4	175·0	174·5	174·1	173·3	172·7	171·8
131·7	137·8	143·7	149·7	155·4	161·2	166·7	171·1	177·6	182·8	**1747**	187·7	192·3	196·5	200·3	203·4	206·1	207·6	208·4	207·7
157·6	171·1	187·2	204·4	221·8	238·1	252·8	263·0	264·8	258·4		253·8	258·7	270·6	286·1	303·5	321·9	339·9	357·0	11·3
230·6	232·4	234·4	236·5	238·5	240·9	243·1	245·3	247·7	249·9		252·1	254·8	256·3	258·3	260·2	262·1	263·7	265·0	266·0
177·4	178·6	179·8	181·1	182·1	183·2	184·3	185·0	185·7	186·6		186·7	187·1	187·3	187·1	186·8	186·6	186·0	185·8	184·7
																	Mr 3	Mr 13	Mr 23
248·6	255·6	262·8	270·0	277·4	284·7	292·3	299·0	307·5	315·0	**1748**	322·5	330·1	337·6	345·1	352·5	359·7	7·2	14·4	21·6
166·6	183·7	201·3	218·1	233·1	244·8	249·3	244·8	238·2	240·2		250·8	266·1	282·3	300·2	318·1	335·2	350·2	0·1	1·0
258·6	259·8	261·4	263·0	264·7	266·7	268·8	270·9	273·0	275·5		277·8	280·2	282·5	284·9	287·1	289.3	291·4	293·4	295·4
187·8	189·0	190·2	191·4	192·5	193·6	194·7	195·5	196·4	197·3		197·8	198·3	198·8	198·8	198·7	198·7	198·1	197·5	197·0
																	Mr 4	Mr 14	Mr 24
144·2	150·4	156·6	162·7	168·8	174·9	181·0	187·1	193·1	199·1	**1749**	204·9	210·7	216·4	222·1	227·5	232·9	237·9	242·7	247·2
179·9	197·8	213·6	226·5	233·5	231·5	224·0	222·8	231·1	245·1		261·3	279·1	296·7	313·9	329·0	339·9	343·2	337·1	332·4
291·1	291·2	291·7	292·5	293·7	294·8	296·4	298·1	301·0	302·3		304 4	306·8	309·1	311 4	314·0	316·3	318·7	321·1	323·4
197·9	199·1	200·3	201·4	202·6	203·8	204·9	205·9	206 9	207·8		208·5	209·1	209·8	210·0	210·2	210·3	209·9	209·6	209·1
274·4	280·4	286·5	293·2	299·8	306·6	313·3	320·1	327·3	334·1	**1750**	341·2	348·3	355·2	2·2	9·1	15·8	22·7	29·5	36·4
193·8	207·8	216·9	217·0	209·9	206·1	212·7	225·2	240·7	258·0		275·5	292 8	308·4	320·4	325·5	320 8	314·8	317·1	328·4
329·3	328·4	327·5	327·2	326·9	327 3	327·9	328·7	330·0	331·4		333·6	334·9	337·0	339·2	341·4	343·8	346·2	348·6	350·8
207 3	209·0	210·1	211·3	212·5	213·7	214·8	215·9	217·0	218·0		218·8	219·6	220·3	220·7	221·1	221·4	221·4	221·4	220·9
156·3	162·8	169·1	175·4	181·9	188·3	194·6	201·1	207·6	214·1	**1751**	220·6	227·1	233·6	240·2	246·7	253·3	259·8	266·3	272·6
199·1	202·2	196·3	191·0	194·5	205 5	220·2	237·2	254·6	271·9		287·9	300·9	307 6	305·0	297·8	298·2	307·6	322·2	339·4
10·8	9·4	8·0	6 8	5·6	4·7	4·0	3·5	3·5	4·0		4·5	5·6	6·8	8·3	10·1	11·9	14·1	16·3	18·4
217·9	219·0	220·0	221·0	222 3	223·6	224·8	225·9	227·0	228·1		228·9	229·8	230 7	231·2	231·7	232·2	232·2	232·2	232·2
S 26	O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25	**1752**	J a 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 4	Mr 14	Mr 24
323·9	324·5	326·3	328·9	332·5	336·6	346·6	346·2	356 3	356·9		2·6	8·5	14·3	20·4	26·4	32·6	38·7	45·0	51·2
184·7	175·7	176·5	186·3	200·3	216·8	234·0	251·4	268·2	281·3		290·0	289 6	282·5	279·6	287 4	300·8	317·3	335·5	354·0
49·8	49·2	48·3	47·3	46·1	44·8	43·3	42·2	41·1	40·1		39·7	39·3	39·6	40·0	40·9	42·6	43·3	44·7	46·5
227·8	228·8	229·8	230·8	232·0	233·2	234·3	235·4	236·6	237·7		238·7	239·7	240·8	241·4	242·1	242·8	243·0	243·3	243·4

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Mar 29	Ap 8	Ap 18	Ap 28	My 8	My 18	My 28	Je 7	Je 17	Je 27	Jl 7	Jl 17	Jl 27	Au 6	Au 16*	Au 26	S 16*	S 26
1752 Mars	...	54·7	60·8	67·1	73·3	79·4	85·9	92·2	98·3	104·7	110·9	117·4	123·6	129·8	136·3	142·6	149·0	155·4	161·3
Merc.	...	3·9	21·7	37·3	48·1	50·7	44·1	40·3	46·4	59·7	76·1	94·2	112·8	130·8	147·5	161·5	169·3	168·3	161·1
Jup.	...	47·5	49·5	51·6	53·8	55·9	58·4	60·9	63·2	65·4	67·9	70·2	72·2	74.4	76·3	78·0	79·7	81·3	82·4
Sat.	...	243·5	243·2	242·8	242·4	241·7	241·0	240·2	239·4	238·7	237·9	237·4	236·9	236·5	236·4	236·4	236·4	237·0	237·5
Eng. date	...	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1753 Mars	...	296·9	304·3	311·8	319·1	326·2	333·2	340·7	347·5	354·4	1·0	7·3	13·4	18.9	24·4	29·2	33·2	36·6	38·9
Merc.	...	15·0	27·2	31·4	25·6	20·9	25·4	37·5	53·6	71·7	90·5	108·9	126·3	141·4	150·9	152 4	145·3	141·8	148·0
Jup.	...	76·1	77·4	78·9	80·6	82·5	84·5	86·6	88·8	91·1	93·4	95·6	97·9	100·3	102·3	104·6	106·7	108·7	110·4
Sat.	...	254·5	254·3	254·1	253·9	253·2	252·6	252·0	251·3	250·5	249·7	249·1	248·4	247·8	247·6	247·5	247·3	247·6	248·0
1754 Mars	...	69·8	75·5	81·2	87·1	92·9	98·9	104·9	101·0	117·1	123·1	129·4	135·7	143·0	148·3	154·7	161·2	167·6	174·3
Merc.	...	12·3	9·0	2·8	4·6	15·7	31·1	49·2	67·8	86·9	104·0	120·4	132·3	135·7	139·4	124·8	128·7	140·2	155·2
Jup.	...	106·2	106·6	107·1	108·1	109·3	110·7	112·3	114·1	116·0	118·0	120·3	122·4	124·6	126·7	129·0	131·2	133·3	135·5
Sat.	...	265·5	265·5	265·5	265·5	265·0	264·5	263·9	263·1	262·3	261·6	269·9	260·2	259·5	259·2	258·8	258·4	258·6	258·7
Eng. date	...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1755 Mars	...	315·4	323·0	330·9	338·4	346·1	353·6	1·1	9·3	15·6	22·7	29·5	36·5	42·9	49·2	55·2	61·2	66·7	71·7
Merc.	...	344·4	344·3	353·6	8·8	26·1	45·0	64·0	82·3	98 9	112·0	118·1	114·6	107·7	109·2	119·8	134·4	151·2	168·9
Jup.	...	138·4	137·6	137·3	137·2	137·6	138·2	139·1	140·2	141·4	143·1	144·8	146·7	148·6	150·7	152·8	155·0	157·2	159·5
Sat.	...	276·2	276·5	276·8	277·0	276·6	276·3	276·0	275 2	274·5	273·8	273·1	272·4	271·6	171·0	270·5	269·9	269·8	269·8
Eng. date	...	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1756 Mars	...	86·8	91·7	96·5	101·8	107·1	112·6	118·3	124 0	130·0	136·0	142·0	148·2	154·4	160·9	167·3	173 9	180·4	187·1
Merc.	...	332·9	346·4	3·5	22·0	41·0	59·8	76·9	91·1	99·2	97·7	90·6	89·8	99·2	113·2	130 0	147·7	165·5	182·7
Jup.	...	172·0	170·7	169·6	168·8	168 0	167·5	167·5	167·7	168·3	169·1	170·2	171·4	173·1	174·8	176·7	178·5	180·7	182·7
Sat.	...	287·2	287·6	287·9	288·4	288·2	288·1	288·0	287·4	286·8	286·2	285·4	284·6	283·9	283·2	282·5	281·8	281·6	281·4
1757 Mars	...	332·6	340·5	348·2	355·9	3·4	11·0	18·3	25·7	33·0	40·0	47·0	53·7	60·4	67·1	73·3	79·6	85·6	91·4
Merc.	...	341·1	359·2	18·2	36·8	54·6	69·6	79·1	80·0	73·0	70·6	78·8	91·8	108·3	125·6	144·5	161·8	177·7	190·0
Jup.	...	206·1	204·9	203·7	202·3	201·1	199·9	198·9	198·1	197·7	197·7	197·7	198·4	199·2	200·3	201·6	203·2	204·9	206·9
Sat.	...	298·0	298·6	299·2	299·8	299·9	300 0	300·1	299·7	299 2	298·9	298·1	297·4	296·6	295·8	295·0	294·3	293·9	293·4
1758 Mars	...	108·6	111·3	114·8	118·9	123·3	128·1	133·1	138·6	144·1	149·8	155·7	161·6	168·1	174·3	180·9	187·4	193·9	200 9
Merc.	...	355·4	14·1	32·0	47·6	58·8	61·7	55·5	51·4	57·2	70 0	86·4	104·3	122·7	140·8	157·0	170·9	178·8	177·7
Jup.	...	239·3	239·1	238·3	237·6	236·4	235·5	233·8	232·4	231·3	230·1	229·4	229·0	228·7	228·9	229.5	230.2	231·4	232·7
Sat.	...	309·0	309.7	310·5	311·3	311·7	312 0	312·3	312·0	311·8	311·6	311·0	310·4	309.7	308·9	308·1	307·2	306·6	306·0
Eng. date	...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1759 Mars	...	349·0	356·7	4·2	11·7	19·3	26·7	33·8	41·1	48·1	55·2	62·0	68·6	75·4	81·8	88·4	94·6	100·7	106·9
Merc.	...	8·5	25·7	38 0	43·0	37 8	32·2	26·2	48·1	64·0	82·0	100·7	119·0	136·2	151·0	166·0	162·4	155·5	151·6
Jup.	...	270·8	271·5	272·0	272·1	272·0	271·4	270·6	269·4	268·1	266·7	265·5	264·1	263·0	262·3	261·6	261·4	261·6	262·0
Sat.	...	320·0	320 9	321·9	322·9	323·4	324·0	324·5	324·5	324·5	324·5	324·0	323·5	323·0	322·2	321·4	320·7	319·9	319·2
Eng. date	...	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1760 Mars	...	138·6	138·3	138·9	140·9	143·6	147·0	151·0	155·5	160·5	165·8	171·5	177·2	183·2	189·5	196·0	202·5	209·2	216·2
Merc.	...	16·7	23·4	19·9	13·3	14·9	26·1	41·5	59·5	78·1	96·6	114·4	130·4	142·2	146·1	140·6	134·7	138·3	149·5
Jup.	...	300·1	301·8	303·5	304 6	305·5	306·3	306·5	306·6	306·1	305·4	304 5	303·3	302·0	300·5	299·2	298·1	297·0	296·3
Sat.	...	331·2	332·3	333·4	334·5	335 3	336·0	336·8	337·0	337·0	337·5	337·3	337·0	336·7	336·0	335·8	334·5	333·7	332·9
1761 Mars	...	4·6	12·1	19·3	26·7	33·8	41·0	48·2	55·2	62·1	68·8	75·6	82·4	88·7	95·3	101·9	108·2	114·4	120 4
Merc.	...	2·3	354·9	355·1	4·3	19·2	36·6	54·7	73·8	91·9	109·2	121·5	128·3	124 7	117·8	119 6	129·4	144·2	160·9
Jup.	...	328·3	330·6	332·7	334·6	336·7	338·3	339·6	340·9	341·8	342·4	342·6	342·4	342·0	341·1	340·1	338·8	337·6	336·1
Sat.	...	342·5	343·7	344·9	346·2	347·1	348·1	349·1	349·6	350·2	350·6	350 6	350·5	350·4	349·9	349·4	348·8	348·0	347·2
1762 Mars	..	184·8	181·4	178 1	176·1	175·0	175·4	177·1	179·7	183 0	187 1	191·8	196·7	202·5	208·3	214·1	220·5	227·0	233·7
Merc.	...	235·6	342·9	356·7	13·9	32·5	51·6	70·1	87 4	101·3	109·7	108·5	101·3	100·4	109 0	123·2	139·7	157·5	175·0
Jup.	...	356·0	358·2	0·6	3·0	5·5	7·7	9·7	11.8	13·7	15·2	16·6	17·8	18·5	19·0	19·1	18·8	18·3	17·4
Sat.	...	354·2	355·5	356·8	358·1	359·2	0·4	1·4	2·2	2·9	3·7	3·9	4·1	4·4	4·0	3·7	3·3	2·6	1·8
Eng. date	...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1763 Mars	...	10·5	20·7	33·8	49·9	47·8	54·8	61·5	68·3	75·2	81·8	88·4	94·9	101·5	107·8	114·3	120·6	126·8	133·3
Merc.	...	335·0	351·3	9·8	28·3	48·0	64·9	80·1	90·2	91·2	84·0	81·2	88·4	101·8	118·2	135·9	153·9	171·4	187·1
Jup.	...	23·7	26·0	28·4	30·8	33·2	38·6	37·8	40·3	42·5	44·6	46·6	48·6	50·1	57·8	52·9	53·8	54·5	54·7
Sat.	...	6·1	7·4	8·7	10·0	11·2	12·5	13·7	14·6	15·6	16·6	17·1	17·6	18·1	18·1	18·0	17·9	17·4	16·8
Eng. date	..	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1764 Mars	...	235·5	237·1	237 9	237.5	236·0	233·9	230·6	228·5	226·7	226 2	226·7	228 7	231·7	235·5	240·1	245·2	250·9	256·7
Merc.	...	346·9	5·5	24·4	42·4	58·3	69·9	73·0	66·9	62·1	68·0	80·2	96·3	114·2	132·4	150·3	166·2	180·4	188·2
Jup.	...	51·3	53·3	55·4	57·6	59·7	61·9	64·4	66·7	69·0	71·4	73·7	75·8	73·0	80·0	82·0	83·6	85·2	86·3
Sat.	...	18·3	19·6	20·9	22·3	23·6	24·9	26·2	27·4	28·5	29·6	30·3	31·1	31·8	32·0	32·3	32·5	32·2	31·8
1765 Mars	...	34·1	41·0	47·8	54·6	61·2	68·0	74·6	81·1	87·5	94·2	100·7	107·0	113·5	120·0	126·2	132·5	138 9	145·3
Merc.	...	1·6	19·8	36·1	48·4	53·7	49·4	43·3	46·9	58·5	74·2	92·0	110·6	128·8	145·8	161·2	170·6	171·9	165·2
Jup.	...	80·1	81·4	82·7	84·2	86·0	88·1	90 0	92 2	94·5	96·8	99·0	101·3	103·6	105 7	107·9	110·1	112·1	113·9
Ven.	...	344·0	356·5	9 0	21·1	33·6	46·0	58·2	70·5	82·7	94·9	107·4	119·2	131·5	143 7	155·1	168 2	180·6	193·0
Sat	...	30·6	31·9	33·2	34·5	35·9	37·2	38·6	39·8	41·1	42·4	43·4	44 4	45·4	45·8	46·2	46·7	46·7	46·6

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93 3	106·7	120·0

* * The 150th day of the Indian solar year corresponding to A.D. 1752-53 was the 26th August, but the 160th day was the 16th declared that the next day after Wednesday, 2nd September 1752, should be Thursday, 14th September 1752. In continental countries, in countries where it was adopted (i.e., all over Europe except the British Isles and Russia) the next day after 4th October 1582 was 15th

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999: Saturn, A.D. 1617—A.D. 1999—*cont.*

	180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
	O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Jy 4	Jy 14	Jy 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
	168·4	175·0	181·5	188·2	194·7	201·5	208·1	215 0	221·8	**1753**	228·7	235 7	242·7	249·7	256·8	264·0	270·2	278·4	285·8	293·1
	159·0	166·7	180 4	196·3	213·5	230·9	247·4	262·0	272·1		274·2	267·7	263·2	267·8	280·1	295·8	318·6	331·9	350·0	7·0
	83·3	83·7	84·4	84·2	83·8	83·1	82·0	80·9	79·6		78·4	77·1	76·0	74·8	74·2	73·9	73·7	73·9	74·5	75·5
	238·0	238·9	239 8	240·7	241·8	242·9	244·0	245·2	246·4		247·5	248·6	249·7	250·8	251·6	252·5	253·3	253·7	254·1	254·5
	O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
	40·2	40·0	38·7	36·6	33·6	31·1	28·8	27·8	28·1	**1754**	29·3	31·5	34·3	36·0	42·0	46·4	51·2	56·3	61·5	67·0
	160·3	175·9	193·0	210·4	227·2	242·4	254·1	258·4	253·6		247·3	249.7	260·1	274·8	291·8	309·8	328·2	345·0	0·2	10·4
	112·2	113·5	114·7	115·8	116·3	116·8	116·8	116·5	115·9		115·0	113·9	112·7	111·4	110·0	108·8	107·8	107·0	106·4	106·3
	248·3	249·1	249·8	250·6	251·6	252·7	253·8	254·9	256·2		257·3	258·5	259·6	260·7	261·7	262·6	263·6	264·1	264·7	265·3
	180·9	187·6	194.2	201·1	208·0	214·9	221·9	229·0	236·2	**1755**	243·4	250·8	258·1	265·6	273·2	280·6	288·4	296·0	303·7	311·4
	171·6	189·1	207·1	222·8	235·8	242·3	240·4	232·8	231·7		240·5	254·3	270·7	288·4	306·3	323·6	339·1	350·4	353·6	347·8
	137·5	139·6	141·4	142·9	144·7	145·6	146·5	147·3	147·9		147·9	147·5	147·1	146·2	145·1	143·8	142·6	141·2	139·9	139·2
	258·8	259·4	260·0	260·7	261·7	262·7	263·6	264·8	266·0		267·1	268·3	269·5	270·6	271·7	272·7	273·8	274·6	275·3	276·0
	O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 5	Mr 15	Mr 25	Ap 4
	78·3	80·6	84·1	87·0	88·7	89·5	89·1	87·0	84·1	**1756**	80·6	76·7	74·1	72·8	71·9	72·9	74·8	77·5	80 9	84·9
	186·6	203·1	216·9	225·7	226·1	218·8	215·5	221·6	234·2		250·0	267·3	285·2	302 5	318·1	330·4	335·5	331·4	325·0	327·4
	161·7	168·7	165·8	167·9	169·9	171·7	173·2	174·7	176·0		176·9	177·6	177·7	178·1	177·7	177·1	176·2	175·1	174·1	172·7
	269·7	270·2	270·6	271·1	272·0	272·9	273·8	274·7	275·7		276 6	277·8	279·0	280·1	281·2	282·4	283·5	284·5	285·5	286·4
	O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
	194·0	200·9	207·8	214·7	221·7	228·8	236·1	243·5	250·9	**1757**	258·6	266·2	273·8	281·5	289·3	297·2	304·8	312·8	320·8	328·5
	197·8	208·4	211·3	205·6	199·9	203·1	214·6	229·8	246·4		264·0	281·3	297·4	310·4	317·5	315·4	308·3	307·9	317·7	332·1
	184·9	187·3	189·3	191·4	193·6	195·9	197·9	199·9	201·6		203·3	204·7	206·1	207·0	207·6	208·1	208·3	207·9	207·4	206·6
	281·1	281·3	281·6	281·9	282·6	283·9	284·2	285·2	286·3		287·3	288·5	289·7	291·0	292·2	293·4	294·5	295·5	296·6	297·5
	97·0	102·5	107·3	111·9	116·0	119·7	122·6	124·4	125·3	**1758**	125·3	123·8	121·0	117·5	114·0	110·2	107·4	106·3	106·2	107·7
	195·5	192·0	184·9	186·0	195·6	209·5	225·9	243·3	260·6		277·0	293·8	299·4	299·7	292·0	289·6	297·2	310·2	327·3	345·6
	208·9	210·9	213·1	215·2	217·5	219·7	227·8	224·2	226·3		228·4	230·4	232·2	233·9	235·6	236·9	237·8	238·7	239·3	239·3
	292·9	293·0	293·1	293·1	293·7	294·3	294·9	295·9	296·9		297·8	299·0	300·2	301·3	302·5	303·7	305·0	306·1	307·3	308·4
	207·8	214·7	221·9	229·0	236·3	243 9	251·3	258·9	266·5	**1759**	274 3	282·0	289·8	297·7	305·5	313·4	321·2	329·3	337·1	344·8
	170·3	167·9	176·2	189.6	205·6	222·8	239·9	256·7	271·2		281·2	283·6	277·2	272·6	277·5	289·7	305·6	323·4	341·9	0·0
	234·3	235·8	237 8	239·9	241·9	244·9	246 4	248·7	251 0		253·3	255 6	257·7	259 9	262·1	264·0	265·9	267·5	268·8	270·1
	305·5	305·3	305·1	304·9	305·3	305·6	306·1	306·9	307·8		308·6	309·7	310·8	312·0	313·2	314·5	315·7	317·0	318·2	319·4
	O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 5	Mr 15	Mr 25	Ap 4
	112·7	118·7	124·0	129·5	134·7	139·5	144·2	148·1	151·7	**1760**	154·3	156·4	157·3	157·1	155·4	152·3	148·7	144·8	141·6	139·5
	157·4	169·8	185·3	202·2	219·7	236·5	251·6	263·2	268·2		263 1	256·6	258·9	269·5	284·3	301·5	319·7	338·0	355·4	10·6
	262·8	263·8	265·1	266·7	268·4	270·4	272·5	274·6	276·6		279·0	281·3	283·8	286·0	288·4	290·8	293·1	295·3	297·3	299 3
	318·4	318·1	317·7	317·3	317·4	317·6	317·8	318·4	319·1		319 8	320·9	322·0	323·0	324·2	325·4	326.6	327.9	329·2	330·5
	O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
	223·0	230·1	237 3	244·6	252·1	259 6	267·2	275·0	282·8	**1761**	290·5	298·3	306·2	314·1	321·8	329·7	337·5	345·2	352·9	0·4
	164·7	181·6	199·0	216·1	231·9	244·6	251·4	249.3	241·6		241·0	250·0	263·6	280·1	297·8	316·1	333·4	349·1	0·8	4·4
	295·9	295·8	296 2	296·9	297·8	299 0	300·5	302·2	304·0		306·0	308·2	310·5	312·8	315·2	317·5	320 1	322·4	324·8	327·2
	332·1	331·6	331·0	330·4	330·3	330·3	330·2	330·7	331·2		331·7	332 6	333·6	334·4	335·6	336·8	338·0	339·3	340.6	341·9
	126·7	132·7	138·4	144·2	149·9	155·6	160·9	166·0	171·1	**1762**	175·7	180·0	184·0	187·2	190·0	191·8	192·3	191·8	189·5	186·8
	177·8	195·8	212·2	225·9	234·9	235·1	228·1	224·2	230 3		243·6	259·4	276·9	294·7	312 0	328·0	340·3	346·1	341·9	335·6
	334·7	333·6	332·7	332·1	331·8	332·0	332·4	333·8	334·3		335 5	337·2	339·0	340 9	343·0	345·2	347·5	349·9	352·3	354·5
	345·4	345·6	344·9	344·1	343·7	343·4	343·2	343·4	343·7		344·0	344·7	345·5	346 2	347·3	348·4	349·6	350 9	352·1	353·5
	240·7	247·8	254·9	262·2	269·6	277·4	284·8	292·5	300·3	**1763**	307 9	315·7	323·4	330·9	338·5	346·2	358·6	1·1	8·2	15·6
	192·0	206·8	217·5	220·3	214 3	208·9	212·5	228·9	249·1		255·9	273·5	290·9	307·1	320·3	327·5	325·4	318·3	318·3	327·6
	16·4	15·1	13 7	12·3	10·3	9·9	10·1	8 6	8·4		8·5	9·1	10·0	11·0	12·5	14·1	15·8	17·9	20·0	22·4
	1·1	0·3	359·5	358·6	358·0	357·5	357·0	357·0	356·9		356·9	357·5	358·1	358·7	359·6	0·6	1·6	2·8	4·0	5·3
	O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 5	Mr 15	Mr 25	Ap 4
	139·3	145·5	151·6	157·7	163·7	169·7	175·6	181·3	187·3	**1764**	193·0	198·6	203·9	209·1	214·2	219·0	223·5	227·7	231·1	234·2
	199·3	204·7	201·0	194·0	194·8	204·6	218·7	235·1	252·6		270·0	286 5	300·5	309·1	309·3	302·2	299·6	306·9	320·6	337·3
	54·8	54·3	53·7	52·6	51·4	50·1	48·7	47·4	46·3		45·2	44·5	44·2	44·1	44·4	45·0	46·0	47·3	48·7	50·3
	16·1	15·3	14·5	13·6	12·9	12·2	11·5	11·2	10·9		10·6	10·9	11·2	11·5	12·4	13·2	14·0	15·1	16·3	17·5
	O 8	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
	268·0	269·5	276·2	283·1	290·2	297·3	304·6	311·9	319·1	**1765**	326·4	333·7	341·0	348·2	355 4	2·4	9 6	16·6	23·7	30 4
	187·0	179·5	177·6	185·9	198·7	214·8	231 8	249·3	265·8		280 7	291·2	293·2	287·0	282·1	287·5	299 4	315·4	333·1	351.8
	87 6	88·4	88·9	88·9	88·6	88·9	87·2	86·0	85 8		83·4	83·1	80·9	79·8	79·0	78·4	78·2	78·4	78·7	79·6
	31·3	30·6	29·9	29·2	28·3	27·5	26·6	26·1	25·5		25·0	25 0	25·0	25·0	25·7	26·3	26·9	27·9	28·9	29·9
	151·6	157·9	164·1	170·4	176·7	183·1	189·3	195·6	202·0	**1766**	208·2	214·5	220·8	227·0	233·3	239·5	245·7	251·8	257·9	263·9
	160·9	166·8	178·9	194·6	211·5	228·8	245·6	260·9	272·5		276·9	272·6	265 9	268·4	278·7	294·3	311·3	329·5	347·9	5·3
	115·7	117·4	118·6	119·7	120·5	121·1	121·1	121·1	120·6		119·7	118·7	117·6	116·3	115·0	113·6	112·6	111·5	111·0	110·7
	205·0	217·2	229·3	241·5	253·3	265·2	276 9	288·6	299·8		310·8	321·0	330·7	339·3	346·4	351·2	352·9	351·3	346·6	340·8
	46·5	45·9	45·3	44·7	43·8	43·0	42·1	41·4	40·7		39·9	39·7	39·5	39·2	39·5	39·8	40·1	41·0	41·8	42·7

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253 3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

September because in the year A.D. 1752 the NEW STYLE was introduced into the United Kingdom by an Act of Parliament which except Russia, this change was carried out in A.D. 1582 when the Gregorian Calendar came into force in those countries under that reform and October 1582.

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle· Venus, A.D. 1765—A.D. 1999 ;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
	Eng. date ...	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1766	Mars ...	266·9	272·7	278·2	283·3	288·3	292·9	296·9	300·2	302·6	304·0	304·4	302·6	300·4	297·8	295·7	294·3	295·1	296·5
	Merc. ...	14·0	27·5	34·0	31·2	24·4	26·1	36·6	52·0	69·7	88·4	106·8	124·6	140·3	151·8	155·6	150·4	144·5	147·9
	Jup. ...	110·5	110·7	111·1	111·9	113·1	115·4	116·0	117·6	119·4	121·4	123·6	125·8	127·9	130·1	132·4	134·6	136·7	138·9
	Ven. ...	339·2	338·2	340·8	346·3	353·9	2·5	11·8	22·1	32·8	43·7	54·9	66·5	78·1	89·8	101·5	113,6	125·7	137·6
	Sat. ...	43·4	44·7	46·0	47·2	48·5	49·8	51·2	52·5	53·8	55·1	56·3	57·4	58·6	59·3	60·1	60·8	61·0	61·2
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1767	Mars ...	40·0	55·3	61·8	68·2	74·5	80·9	87·2	93·6	99·9	106·3	112·6	119·0	125·2	131·7	138·1	144·3	150·8	157·3
	Merc. ...	14·1	13·4	6·2	5·5	15·0	29·5	47·0	65·6	84·5	102·8	119·2	132·2	138·4	135·2	128·8	129·2	139·4	153·4
	Jup. ...	143·0	142·2	141·6	141·3	141·5	142·0	142·8	143·7	145·0	146·4	148·2	150·1	152·0	153·9	156·0	158·2	160·4	162·6
	Ven. ...	21·6	34·0	46·1	58·1	70·2	82·0	93·8	105·5	117·1	128·2	139·4	149·4	159·7	170·6	180·0	188·0	194·9	199·1
	Sat. ...	56·4	57·5	58·7	59·8	61·1	62·4	63·7	65·0	66·4	67·8	69·1	70·3	71·5	72·5	73·4	74·4	74·9	75·3
	Eng. date ...	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1768	Mars ...	289·5	296·5	303·5	310·7	317·6	324·4	331·2	337·7	344·0	350·2	355·8	1·1	5·8	10·0	13·2	15·4	16·1	15·6
	Merc. ...	348·7	346·0	353·0	6·9	24·1	42·6	61·7	80·2	97·5	111·9	120·3	119·0	111·4	110·4	119·2	132·7	149·3	166·8
	Jup. ...	176·7	175·4	174·1	173·8	172·5	171·7	171·6	171·6	172·0	172·8	173·7	175·0	176·4	178·2	180·0	181·9	183·9	186·1
	Ven. ...	326·8	338·8	351·0	3·1	15·3	27·5	39·8	52·0	64·1	76·3	88·4	100·9	113·0	125·4	137·8	150·1	162·4	174·9
	Sat. ...	69·6	70·6	71·5	72·5	73·7	75·0	76·2	76·6	78·9	80·2	81·5	82·8	84·2	85·3	86·4	87·5	88·3	89·0
1769	Mars ...	68·7	69·7	75·5	81·6	87·7	93·7	99·8	106·0	112·1	118·4	124·6	130·8	137·2	143·5	149·9	156·4	162·8	169·4
	Merc. ...	333·8	345·1	1·5	19·8	38·8	57·8	75·3	90·5	100·8	101·7	94·7	91·8	98·6	111·6	127·9	145·5	163·4	180·8
	Jup. ...	210·8	209·7	208·4	207·1	205·7	204·6	203·6	202·7	202·0	201·8	201·9	202·2	203·0	204·1	205·3	207·7	208·3	209·2
	Ven. ...	♑·8	52·6	58·6	62·2	62·1	58·5	52·6	47·8	45·1	48·2	53·4	60·8	69·5	79·0	89·2	100·0	110·9	122·3
	Sat. ...	83·2	84·0	84·7	85·4	86·5	87·6	88·7	89·9	91·4	92·6	93·9	95·2	96·6	97·9	99·1	100·3	101·2	102·2
1770	Mars ...	308·4	316·0	323·6	331·2	338·7	346·2	353·5	0·7	8·0	14·9	21·7	28·4	34·7	40·7	46·6	51·9	56·5	61·5
	Merc. ...	339·3	357·1	15·8	34·7	52·8	68·8	80·2	83·9	77·9	73·1	78·4	90·6	106·5	124·0	142·0	160·1	176·4	189·7
	Jup. ...	243·9	243·6	243·1	242·3	241·3	240·0	238·8	237·4	236·2	235·1	234·0	233·5	233·1	233·3	233·5	234·3	235·3	236·4
	Ven. ...	3·4	15·8	28·1	40·5	52·7	64·8	77·1	89·2	101·4	113·2	125·4	137·4	149·3	161·1	172·9	184·7	196·3	207·5
	Sat. ...	96·9	97·3	97·8	98·3	99·3	100·2	101·1	102·3	103·4	104·7	106·1	107·4	108·7	110·0	111·2	112·5	113·6	114·7
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1771	Mars ...	79·9	85·0	90·3	95·9	101·4	107·1	113·0	118·8	124·8	130·9	137·0	143·2	149·6	155·9	162·3	168·7	175·3	182·0
	Merc. ...	353·3	11·8	30·1	46·8	59·6	64·8	60·5	54·4	57·9	68·8	84·6	102·1	120·5	138·6	155·6	170·3	180·0	181·2
	Jup. ...	275·0	275·9	276·4	276·7	276·7	276·4	275·5	274·5	273·3	272·1	270·8	269·5	268·2	267·2	266·6	266·1	266·1	266·4
	Ven. ...	314·2	325·0	336·4	347·7	359·7	11·2	23·0	34·9	46·9	58·9	70·7	82·8	94·8	107·2	119·2	131·9	144·1	156·3
	Sat. ...	110·8	110·9	111·1	111·3	112·1	112·8	113·5	114·6	115·7	116·8	118·1	119·4	120·5	121·9	123·2	124·5	125·7	126·8
	Eng. date ...	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 18	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1772	Mars ...	336·0	333·8	341·6	349·2	356·8	4·4	11·8	19·1	26·4	33·5	40·8	47·3	53·9	60·5	66·8	72·9	78·9	84·5
	Merc. ...	7·5	24·4	38·1	45·6	44·7	35·6	37·2	47·0	62·2	79·9	98·3	116·7	134·5	150·0	161·6	165·4	160·2	154·0
	Jup. ...	304·1	305·8	307·6	309·2	309·9	310·9	311·2	311·5	311·2	310·8	310·0	308·8	307·6	306·1	304·8	303·5	302·4	301·5
	Ven. ...	38·5	49·9	61·6	72·5	83·3	93·4	103·1	112·1	119·6	125·1	128·1	127·5	123·5	117·5	113·0	112·0	115·0	120·5
	Sat. ...	124·7	124·5	124·4	124·3	124·3	125·3	125·8	126·7	127·6	128·5	129·7	130·9	132·2	133·5	134·8	136·0	137·2	138·4
1773	Mars ...	99·6	103·0	107·1	111·7	116·5	121·7	127·4	132·6	138·4	144·2	150·2	156·4	162·6	168·9	175·3	181·8	188·6	195·3
	Merc. ...	18·6	25·3	24·4	17·4	17·4	25·4	40·1	57·4	75·9	94·6	112·7	129·1	142·2	148·1	145·1	137·9	137·0	148·4
	Jup. ...	332·2	334·4	336·6	338·6	340·6	342·4	344·0	345·2	346·4	347·1	347·6	347·5	347·4	346·6	345·8	344·4	343·3	341·9
	Ven. ...	344·5	357·2	9·7	21·8	34·8	46·7	58·9	71·1	83·4	95·6	108·0	119·9	132·2	144·4	156·8	169·0	181·3	193·6
	Sat. ...	138·4	138·1	137·7	137·5	137·7	138·0	138·2	138·9	139·7	140·3	141·4	142·5	143·6	144·8	146·0	147·3	148·6	149·9
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1774	Mars ...	342·8	350·6	358·1	5·8	13·3	20·7	28·0	35·2	42·5	49·4	56·3	63·0	69·6	76·3	82·8	89·0	95·2	101·1
	Merc. ...	6·5	359·9	356·8	3·9	17·5	34·6	53·0	72·0	90·7	107·8	121·9	130·3	129·2	122·0	120·7	129·0	142·4	158·9
	Jup. ...	359·1	2·2	4·6	7·2	9·4	11·6	13·9	15·9	17·9	19·4	20·9	22·3	23·2	23·7	24·1	24·0	23·5	22·9
	Ven. ...	335·4	336·4	339·7	345·7	353·7	2·6	11·9	22·4	33·2	44·2	55·4	67·0	78·7	90·3	102·1	114·2	126·3	138·3
	Sat. ...	152·1	151·5	151·0	150·4	150·4	150·4	150·4	150·9	151·5	151·9	152·8	153·7	154·7	155·9	157·0	158·2	159·5	160·8
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl. 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1775	Mars ...	125·4	126·4	128·5	131·2	134·8	138·9	143·5	148·4	153·7	158·2	163·1	170·9	177·1	183·3	189·3	196·3	203·1	209·9
	Merc. ...	338·0	342·9	355·8	12·0	30·2	49·1	68·0	86·2	100·9	111·0	112·6	105·7	102·5	108·6	121·4	137·8	155·3	173·0
	Jup ...	27·5	29·8	32·1	34·5	36·9	39·3	41·6	44·0	46·3	48·4	50·5	52·5	54·1	55·9	57·1	58·2	58·9	59·4
	Ven ...	22·3	34·8	46·7	58·7	70·8	82·6	94·3	106·0	117·5	128·6	139·7	149·8	159·9	170·5	179·5	187·2	193·6	198·8
	Sat. ...	165·4	164·7	164·0	163·4	163·1	162·9	162·8	162·8	163·1	163·4	164·2	165·0	165·8	166·9	167·9	169·0	170·2	171·4
	Eng. date ...	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1776	Mars ...	358·5	6·1	13·7	21·0	28·4	35·5	40·11	49·7	56·7	63·5	70·5	77·0	83·8	90·5	96·7	103·0	109·2	115·3
	Merc. ...	333·9	349·4	7·3	25·8	44·8	63·5	78·9	91·1	94·5	89·0	83·8	88·8	100·8	116·5	133·8	151·8	169·5	185·7
	Jup ...	55·2	57·1	59·1	61·2	63·5	65·5	67·9	70·2	72·6	74·6	77·2	79·4	81·7	83·6	85·6	87·5	89·1	90·4
	Ven. ...	327·4	339·4	351·8	3·8	16·0	28·2	40·5	52·7	64·9	77·0	89·1	101·6	113·5	126·1	138·5	150·8	163·2	175·6
	Sat. ...	178·4	177·6	176·9	176·1	175·7	175·2	174·7	174·8	174·9	174·9	175·4	176·0	176·6	177·5	178·5	179·4	180·6	181·8
1777	Mars ...	164·2	161·3	159·9	159·7	160·3	162·4	165·8	168·9	173·0	177·7	182·9	188·3	194·2	200·3	206·4	213·0	219·6	226·5
	Merc. ...	344·9	3·3	22·3	40·6	57·2	70·1	75·7	71·7	65·4	68·1	79·3	94·7	112·1	130·4	148·3	165·3	179·7	189·3
	Jup. ...	84·0	85·2	86·5	88·0	89·8	91·7	93·8	95·7	97·9	100·2	102·3	104·6	106·9	109·2	111·4	113·5	115·6	117·5
	Ven. ...	44·3	51·8	57·2	59·0	58·8	54·8	48·9	44·9	42·2	47·2	52·8	60·6	69·5	79·1	89·4	100·4	111·3	122·8
	Sat ...	191·0	190·2	189·4	188·6	188·1	187·5	186·8	186·7	186·6	186·3	186·7	187·0	187·0	187·8	189·1	189·9	191·0	192·1

Mesh	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—AD. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
299·4	303·0	307·5	312·1	317·4	323 1	328·9	334·9	341·1	**1767**	347 5	354·2	0·1	6·5	13·0	19·4	25 9	32·5	38·8	45·3
159·1	174·1	191·0	208·3	225·5	241·2	258·9	260·5	2 8·1		250·7	250·5	259·0	273·2	290·0	307·8	326·1	343·6	359·3	11·1
141·0	142·9	144·8	146·5	148·0	149·4	150·6	151·3	152·0		152·1	151·9	151·6	150·9	149·8	148·5	147·3	145·7	144·7	143·5
150·2	162·3	174·9	187·1	199·7	212 2	224·8	237·5	250·1		262·8	275·3	288·1	300·6	313·2	325·7	338·2	350·6	3·1	15·4
61·4	61·0	60·7	60 2	59·5	58·7	57·9	57·1	56·3		55·5	55·0	54·5	53·9	54·0	54·0	54·0	54·6	55·3	55·9
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 5	Mr 15	Mr 25	Ap 4
163·7	170·2	176 6	183·1	189·7	196·4	202·9	209·5	216·2	**1768**	223·0	229·8	236·7	243·6	250·5	257·4	264·4	271·4	278·5	285·5
170·1	187·0	205·1	221·4	235·1	243·8	244 0	236·6	233·4		239 9	252·9	268·7	286·3	304·2	321·9	337·9	350·7	356·2	353·0
164·8	166 9	169·0	171·1	173·2	175·0	176·7	178·2	179·5		180·6	181·5	181·9	182·1	182 1	181·7	180·8	179·9	178·7	177·3
200·1	198·1	192·8	187·8	185 3	186·7	191·6	198·8	207·0		217·0	227·4	238·2	249·4	260·9	272·5	284·5	296·5	308·4	320·5
75·8	75·7	75·6	75·5	74·9	74 2	73·7	72·8	71·9		71·1	70·4	69·7	68·9	68·7	68·4	68·2	68·6	68 9	69·3
O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
13·8	11·3	8·7	6·5	5·8	5·7	6·5	8·6	11·4	**1769**	14·9	18·8	22·8	28·0	33·0	38·3	43 6	49·2	55·1	60·7
184·5	201·2	215·9	226·5	229·3	222·9	217·7	221·8	233 0		218·0	265·4	283·3	300·4	316·8	330·2	337·8	336·1	328·6	328·4
188·1	190·4	192·5	194·8	197·0	199 0	201·3	203·2	2·5·1		206·8	208·3	209·7	210·9	211·7	212·3	212·5	212·3	212·0	211·8
167·8	199·7	212·2	224·6	237·1	249·4	262·1	274·4	286·9		299·1	311·2	323·2	335·2	346·8	358·3	9·5	20·2	30·6	40·1
89·7	89·9	90·0	90·2	89·8	89·5	89·0	88·2	87·4		86·7	85 9	85·1	84·2	83·8	83·3	82·8	82·8	82·8	82·9
176·0	182·5	189·2	196·0	202 7	209·6	216·4	223·4	230·5	**1770**	237·7	244·9	252·1	259·4	266·8	274·3	281·7	289·1	296·7	304·4
196·4	208·6	213·7	209·9	202·9	203·8	213·4	227·8	243·8		261·9	279·4	296·0	310·0	319·3	319·3	312·7	309·9	317·1	330 5
212·2	214·1	216·4	218·6	220·7	223·1	225·2	227·4	229·7		231·8	233·7	235·8	237·5	239·1	240·7	241·8	242·8	243·5	243·7
134·0	145·8	157·7	169·7	181·9	194·3	206·5	219·1	231·8		244·1	256·8	269·4	281·6	294 5	307·1	319·6	332·1	344·5	357·0
108·1	103·5	103·9	104·3	104·2	104·1	104·0	103·4	102·7		102·0	101·2	100·3	99·5	98·8	98·2	97·5	97·3	97·0	96·8
65·5	68·6	70·8	72·1	72·1	70·7	68·2	65·0	61·6	**1771**	58·5	56·8	56·4	57·0	58·8	61·3	64·8	68·5	72·9	77·5
197·4	195·9	188·4	186·9	194·9	207·9	224·0	241·3	258·7		275·4	290·1	300·7	302·9	296·3	291·9	297·2	309·1	325·5	343·2
238·0	239·6	241·5	243·4	245·6	247·8	250·0	252·2	254·6		256·8	259 0	261·4	263·6	265·8	267·7	269·6	271·3	273·0	274·3
218·7	229·7	240·0	249 8	258·7	266·4	272·2	275·5	275·0		271·2	266·1	261·6	261·8	265·0	271·3	278·9	288·2	297·9	308·5
115·5	116·4	117·1	117·8	117·9	118·0	118·2	117·2	117·3		116·9	116·1	115·4	114·6	113·8	113·0	112 2	111·7	111·3	110·8
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 5	Mr 15	Mr 25	Ap 4
188·7	195·5	202·3	209·2	216·2	223·4	230·6	237·8	245·2	**1772**	252·7	260·0	267·6	275·3	282·9	290·6	298·5	306·3	314·0	321·9
174·2	170·3	176·2	188·2	203·7	220·7	238·0	255·1	270·2		282·0	286·1	281·5	275·3	278·0	288·6	303·7	321·2	339·6	358·0
267·0	267·9	269·1	270·6	272·2	274·1	275·0	278·1	280·4		282·6	284·9	287·4	289·6	292·0	294·5	296·8	298 9	301·9	303·1
168·8	181·2	193·8	206·4	218·9	231·4	244·1	256·7	269·4		282·0	294·5	306·9	319·3	331·9	344·0	356·4	8·1	20·5	32·5
128·0	128·8	129·7	130·6	131·0	131·4	131·8	131·6	131·5		131·2	130·5	129·8	129·2	128·4	127·7	126·9	126 2	125·6	125·0
O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
89·9	94 8	99·4	103·4	109·9	109·6	111·6	112·3	112·0	**1773**	110 0	107 2	103 5	99·7	96·5	94·3	93·4	93·8	95·4	97·9
157·5	168·6	183·4	200·1	217·6	234·6	250·5	263·1	270·1		267·4	260·1	259·8	268·5	282·6	299·5	317·6	335·9	353·6	9·4
301·0	300 8	300·8	301·4	302·2	303·3	304·6	306·2	307·9		309·9	312·0	314·2	316·6	319·0	321·2	323·8	326·6	328·6	330·7
128·2	137·2	147·2	157·3	168·5	179·6	191·1	205·1	215·0		226·9	239·3	251·7	264·0	276·3	288·6	301·1	313·6	325·9	338·4
139·7	140·7	141·7	142·7	143·6	144·0	144·6	144·6	144·7		144·7	144·3	143·8	143·4	142·6	141 8	141·0	140·3	139·5	138·7
202·7	209·1	216·1	223·3	230·4	237·7	245·1	252·8	260·3	**1774**	268·0	275·8	283·5	291·2	299·1	307·0	314·9	322·9	330·6	338·6
168·1	179·6	197·1	214·1	230·5	244·4	253·0	252·9	245·5		242·8	249·2	262·2	278·3	295·9	314·1	331·8	348·1	1·0	7·2
340·5	339·2	338·2	337·4	336·9	336·9	337·0	337·7	338·6		339·8	341·3	343·1	344·8	346·8	349·1	351·3	353·7	356·0	358·5
205·7	217·8	230·0	242·1	253·9	265·7	277·4	288·9	300·1		310 9	320 9	330·3	338·4	344·9	348·8	349·3	346 9	342·2	337·1
151·1	152·2	153·8	154·4	155·2	155·9	156·7	157·0	157·3		157·6	157·4	157·4	156·9	156·2	155·6	154·8	154·1	153·3	152·4
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 15	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
107·0	112·8	118·0	123·2	128·0	132·5	136·4	139·2	142·5	**1775**	144·2	145·2	144·2	142·4	139·5	135·5	132·1	128·8	126·2	125·5
178·3	193·7	210·6	225·1	235·6	237·9	232·2	226·8	230·7		242 2	257·5	274·7	292·5	310·2	326·9	340 2	348·2	346·6	339·5
21·9	20·6	19·2	17·8	16·5	15·4	14·4	13·7	13·3		13·7	13·7	14·5	15·5	16·7	17·9	20·0	21·9	23·9	26·1
150·9	163·0	175·7	187·7	200·4	212·8	225·5	238·2	250·8		263·5	276·0	288 8	301·3	313·9	326·4	338·9	351·3	3·7	16·1
162·0	163·1	164·3	165·4	166·4	167·3	168·3	168·7	169·2		169·7	169·7	169·7	169·7	169·1	168·6	168·1	167·3	166·6	165·8
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 5	Mr 15	Mr 25	Ap 4
216·8	224·0	231·0	238·4	245·8	253·3	260·9	268·5	276·3	**1776**	284 0	291·9	299·9	307·7	315·5	323 3	331·3	339·1	346·7	354·5
190·3	205·7	218·0	223·5	218·6	211·0	213 0	222·8	237·2		253·7	271·3	289·1	305 7	320 1	329·1	329·6	322·5	319·9	327 0
59·5	59·5	58·8	57·9	56·8	55·5	54·1	52·9	51·6		50·5	49·6	49·1	48·9	49·1	49·4	50·2	51·4	52·6	54·3
196·8	194·0	188·7	184·6	183·2	185·4	190·9	198·5	206·9		217·1	227·6	238·5	249·8	261·4	273 0	285·1	297 0	309·0	321·1
172·6	173·8	175·0	176·3	177·3	178·3	179·3	179·9	180·6		181 4	181·6	181·8	181·9	181·6	181·2	180·9	180·2	179·4	178·8
O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
121·4	127·3	133·0	138·7	144·2	149·5	154·6	159·4	163·9	**1777**	168 2	171·6	174·5	176·8	177·6	177·8	176·3	173·5	169·8	165·9
199·1	206·4	205·2	197·5	196·0	204·0	217·1	233·3	250·4		267·9	284·8	299·7	310·3	312 7	306 6	301·7	307·2	319·3	335 5
91·8	92·6	93·0	93·6	93·3	92·6	92·1	91·2	89·5		88·6	87·3	86·0	84·9	83·9	83·1	82·8	82 7	83·0	83·7
188·0	200·4	212·9	225·3	237·8	250·1	262·7	275·1	287·5		299·7	311·8	323·8	335·7	347·3	358·7	9·8	20·4	30·6	39·7
183·0	184·2	185·4	186·6	187·7	188·8	189·9	190·7	191·5		192·4	193 8	193·2	193·6	193·4	193·3	193·2	192·6	192·0	191·4
233·6	240·6	247·9	255·2	262·6	270·1	277·8	285·5	293·2	**1778**	301 0	308·8	316·5	324·2	331·9	339·7	347·3	354·8	2·3	9·7
190·5	183·5	179·7	185·4	197·4	212·8	229·6	247·2	264·3		279·6	291·3	296·0	291·4	285·1	287·6	298·5	313·7	331·2	349·7
119·3	120·9	122·3	123·5	124·4	125·1	125·4	125·4	125·2		124·5	123·5	122·5	121·2	119·9	118·6	117·3	116·2	115·5	115·0
134·6	146·4	158·3	170·3	182·6	194·9	207·1	219·7	232·7		244·8	257·5	270·1	282·3	295·1	307·8	320·3	332 7	345·2	357·7
193·2	194·4	195·6	196·7	197·9	198·9	200·2	201·0	202·1		203·0	203·6	204·1	204·7	204·8	204·9	205·0	204·5	204·1	203·6

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Srav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Reva.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333 3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1778	Mars ...	13·6	21·0	28·1	35·4	47·4	49·6	56·4	63·2	70·1	76·7	83·4	90 1	96·5	103·1	109·4	115·6	122·2	128·3
	Merc. ...	359·6	17·9	34·9	48·8	56·3	54·2	47·1	47·6	57·8	72·8	90·1	108·5	126·8	144·4	159·8	171·1	175·0	169·4
	Jup. ...	114·8	114·9	115·3	115·9	117·0	118 2	119·6	121·2	123·0	125·0	127·1	129·2	131·4	133·4	135·6	138·0	140·2	142·4
	Ven. ...	4·1	16·5	28·8	41·2	53·4	65 5	77·8	89 9	102·0	113·9	126·0	138·0	149·9	161 7	173·4	185·2	196·7	207·8
	Sat. ...	203 3	202·5	201·7	201·0	200·3	199·6	198·9	198·6	198·2	197·8	198·0	198·1	198·4	199·0	199·7	200·3	201·2	202·2
	Mars ...	218·0	217·0	214·9	212·1	208·3	206·1	204·5	204·0	204·8	206·9	209·7	213·4	217·8	222·9	228·2	234·0	240·3	246 7
	Merc. ...	12 5	27·4	37 5	35·9	28·7	27·4	36·3	50·5	68·2	86·0	104·7	122·8	139·1	152·1	157·8	155 3	147·8	149·0
	Jup. ...	147·6	146·7	146·0	145 6	145 5	145·9	146·6	147·5	148·6	150·0	151·6	153·4	155·2	157 3	159·4	161·4	163·7	165·9
	Ven. ...	314·5	325·4	336·8	348·2	0 2	11·8	23·6	35 5	47 5	59·5	71·3	83·5	95·5	107·8	119·9	132·5	144·8	157·0
	Sat. ...	215·3	214·6	213 9	213·1	212·3	211·5	210·8	210·3	209 8	209·3	209·3	209·2	209·2	209·6	210·1	210·6	211·5	212·4
	Eng. date ...	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1780	Mars ...	28·4	35·5	42·2	49 2	56 0	62·8	69·6	76·2	82·6	89·3	95·9	102·3	108·7	115·2	121·6	128·0	134·2	140·6
	Merc. ...	15·5	17·5	10·7	7·4	14·7	28 1	45·5	63·4	82·4	101·3	117·9	131·9	140·2	139·4	132·6	130·5	138·8	152·1
	Jup. ...	181·4	180·1	179·8	177·8	176·8	176·7	176·7	175·6	175·9	176·4	177·5	178·5	179·4	181·5	183·4	185·1	187·2	189·2
	Ven. ...	39·0	50·4	62·0	72·8	83·5	93·5	103·0	111·6	118·8	123·7	125·7	124·1	119·5	113·9	110·2	110·3	113·9	120·0
	Sat. ...	226·9	226 3	225·7	225 1	224·3	223·5	222·8	222·1	221·5	220·8	220 6	220·3	22 ·2	220·4	220·7	221·0	221·7	222·4
	Mars ...	258·2	260·7	265·2	269·0	272·0	274·4	275·5	275·7	275·1	272·8	270·0	268·1	264·4	266·6	267·2	269·7	273·1	277·2
	Merc. ...	353·6	348·5	353 3	6·0	22·3	40 5	59·8	78·3	98·0	111·0	121·2	122·9	116·2	112·7	118·6	131·4	147·3	164·6
	Jup. ...	215·5	214·4	213·2	211·9	210·5	209·4	208·3	207·3	206 6	206·1	206·1	206 4	206·9	207·8	209·0	210·2	211·9	213·8
	Ven. ...	345·0	357·9	10·4	22·5	35·0	47·4	59·6	71·8	84 0	96 3	108·7	120 6	132·8	145·0	157·6	169·7	182·0	194·3
	Sat. ...	238·3	238·0	237·7	236·9	236·2	235 4	234·7	234·0	233·3	232·5	232·0	231·6	231·2	231·3	231·5	231·5	232·1	232·7
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1782	Mars ...	43·1	49·6	56·1	62·7	69·3	75·8	82 3	88·6	95·2	101·5	107·9	114·2	120·7	127·1	133·4	139·8	146·2	152 5
	Merc. ...	332·4	344 0	359·8	17 6	36·5	55·5	73·8	89·8	101·5	105·3	99·6	94·5	98 9	110·8	126·2	143·5	161 3	178 9
	Jup. ...	248·2	248·0	247·8	247·0	245·2	244·9	243·7	242·4	241·1	239·6	238·8	238·1	237·7	237·6	237·7	238·4	239·2	240·4
	Ven. ...	333 6	334 6	338·8	345·1	353·5	2·5	11·8	22·6	33·5	44·6	55·8	67·6	79·2	90·8	102·6	114·8	126·9	138·9
	Sat. ...	249·4	249·1	249·0	248·6	247·9	247·3	246·6	245·9	245·1	244·4	243·7	243·2	243·4	242·5	242·3	242·3	242·6	243·1
	Mars ...	281·1	287 9	294·3	301·0	307·5	313 8	319·8	325 6	331·3	336·3	340 9	344·5	349·2	348·8	349·2	348·1	340·0	343·5
	Merc. ...	337·6	355·1	13·6	32·5	51·1	67·7	80·6	86 7	82·7	76·3	78·8	89·6	104·3	122·0	140·1	158·0	174·5	169·2
	Jup. ...	278·9	280·0	280 8	281·2	281·4	281·1	280·7	279·4	278·5	277·3	276 3	274·8	273 4	272·3	271·5	271·1	270 8	270·9
	Ven. ...	22·9	35·2	47·3	59·3	71 4	83 1	94 8	106·5	117·9	128·9	140·0	150·1	160·2	170·3	179·1	186·4	192·3	194·5
	Sat. ...	260·4	260·3	260·3	260·2	259·6	259·0	258·4	257·6	256·8	256·1	255 4	254·8	254·1	253·9	253·7	253·2	253·5	253·7
	Eng. date ...	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1784	Mars ...	57·9	63·9	70 2	76·2	82·3	88·6	94 9	101 1	107·3	113·6	120·0	126·2	132·6	138·9	145·2	151·6	158·1	164·6
	Merc. ...	351·0	9·9	22 2	45·4	59·5	67·0	65·3	58·2	58·7	69·3	82·9	100·1	118 2	136·7	153·8	169·3	180·7	184·2
	Jup. ...	308·0	309·8	312·7	313 1	314·3	315·2	316 0	316·2	316·3	315·9	315·3	314·4	313·1	311·8	310·5	309·0	307·8	306·9
	Ven. ...	328·0	310·1	352·5	4·6	16·7	28·9	41·1	53·5	65·6	77·7	89·8	102·3	114·0	126·8	139·2	151·5	163·9	176·3
	Sat. ...	271·3	271·4	271·6	271·7	271·3	270·9	270 5	269·7	268 9	268·2	267·5	266·8	266·0	265·6	265·1	264·5	264·6	264·6
	Eng. date ...	Ap 9	Ap 19	Ap 29	My 9	M 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1785	Mars ...	301·0	308·5	316·0	323·2	330·9	338·1	345·6	352·5	359·6	6 4	12·8	19·2	25·1	30·9	36 3	40·8	45·0	48·6
	Merc. ...	5·8	23 0	37 8	46 9	47·1	40·0	38·5	46·5	60·9	77·9	96 3	114·7	132·7	148·8	161 7	167 7	164·6	157·4
	Jup. ...	338·0	338·2	340·5	342·6	344 6	346·6	348·1	349·6	350·9	351·7	352·4	352·6	352·5	352·1	351·3	350·2	349·1	347·7
	Ven. ...	44·0	51·0	55·9	57·7	55·6	50·6	45·2	42·0	39·3	46·1	52·3	60·4	69·6	79 2	89·6	100·7	111·7	123·3
	Sat. ...	282·1	282·4	282·8	283·1	282·9	282·6	282·4	281·8	281·1	280·5	279·7	278·9	278·2	277·5	276·9	276 3	276·1	276·0
	Eng. date ...	Ap 10	A 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1786	Mars ...	73·3	78·9	84·4	90·1	95·9	101·8	107·8	113·7	119 7	125·8	132·0	138·3	144·6	151·0	157·3	163·9	170·4	176 9
	Merc. ...	15·8	26·7	28·5	21·6	18·6	25·1	38·7	55·3	73·6	92·3	110·7	127·7	141·9	149·8	149·3	141·7	140 3	148·0
	Jup. ...	3·8	6·2	8·6	10·9	13 4	15·6	17·8	19·9	21·8	23·7	25·3	26·6	27·8	28·5	29·0	29·1	28·7	28·1
	Ven. ...	4·8	17·2	29·5	41·9	54 1	66·2	78·0	90·6	102·6	114·5	126·6	138·6	150·4	162·2	173 9	185 6	197·1	208·2
	Sat. ...	293·0	293·6	294·1	294·6	294·5	294·8	294·8	294·1	293·6	293·2	292·3	291·5	290·6	289·9	289·3	288·7	288·4	288·0
	Mars ...	319 2	327·0	334·8	342·4	350·0	357·5	5·1	12·3	19·6	26·7	33·7	384·4	47·0	53·5	59·6	65·7	71·4	76·7
	Merc. ...	10·0	4·7	359·4	4·2	16·5	32·6	50·9	69·7	88 7	105·6	121·3	131·7	133·0	128·4	122·6	128·8	141·2	159·9
	Jup. ...	31·1	33 5	35·8	38·1	40·6	42·8	45·2	47·7	49·9	52·2	54·2	56·3	58·0	59·8	61·3	62·5	63·4	64·1
	Ven. ...	314·8	325·9	337·3	348·7	0·7	12·3	24·2	36·1	48·1	60·2	72·0	84·2	96·2	108·5	120·6	133·2	145·5	157·7
	Sat. ...	303·8	304·5	305·4	306·0	306·2	306·4	306·6	306·2	305·9	305·6	305·0	304·4	303·6	302·8	302·0	301·2	300·7	300·2
	Eng. date ...	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1788	Mars ...	91·4	95·6	100·2	105·2	110·5	116·8	121·4	127·0	132·9	138·9	144·8	151·0	157·4	163·6	170 0	176 0	183·3	190·0
	Merc. ...	341 2	343·2	35[illegible]	10·1	28·0	46·8	65·9	84·0	99·9	111·8	115·8	110·3	104·8	108·5	120 6	135 9	153 0	170 7
	Jup. ...	59·9	60 8	62·8	64·9	66·9	69·1	71·5	73·7	76·1	78·4	80·6	82 9	85·2	87·4	89·4	91 3	93 0	94·4
	Ven. ...	39·5	50 9	62·4	73·1	83·7	93·6	102·9	111·1	117·9	122·3	123·2	120·7	115·5	110·2	107·4	108·5	112 9	119·4
	Sat. ...	314·8	315·7	316·6	317·5	317 9	318·4	318·9	318·8	318·6	318·6	318 0	317·5	316·8	316·0	315·2	314·4	313 7	313·0
	Mars ...	386·3	344·0	351·8	359·4	7·0	14·5	22·0	29·1	36·4	43·4	50·3	57·1	63·9	70·4	76·8	83·0	89·2	95·1
	Merc. ...	333 2	347·8	5·3	24·1	43·1	61·6	78·2	91·3	97·3	93·8	87·2	89·0	99·8	114·7	131 8	149·7	167·4	184·1
	Jup. ...	88·2	89·1	90·3	91·9	93 3	95·2	97·0	99·2	101·3	103·5	105·7	108·1	110 3	112·5	114·8	116·9	119·0	121·1
	Ven. ...	345·5	358·6	11·1	23·2	35·7	48·1	60 3	72·4	84·7	97 0	109·3	121·3	133·5	145·7	158·3	170 5	182·7	195·0
	Sat. ...	326·0	327·0	328·1	329·1	329·8	330·4	331·0	331 2	331·4	331·5	331·1	330·7	330·3	329·6	329·4	328·0	327·2	326·4

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B.—*cont.*

Mars., A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D.1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
134·5	140·4	146·6	152·5	158·4	164·2	169·9	175·6	181·1	**1779**	185·5	191·7	198·4	201·2	206·5	209·3	212·7	215·4	217·2	218·2
163·5	167·0	177·8	192·7	209·3	226·7	243·9	259·6	272·5		279·2	276·8	269·6	269·1	278·4	292·6	309·3	327·5	345·5	3·9
144·4	146·5	148·4	150·1	151·6	153·0	154·2	155·2	155·9		156·3	156·2	155·9	155·4	154·4	153·1	151·9	150·7	149·2	143·2
219·0	229·8	239·9	249·5	258·1	265·3	270·4	272·7	271·1		266·8	262·0	258·8	259·9	263·9	270·9	278·7	288·1	298·1	308·7
203·2	204·4	205·6	206·7	207·9	209·1	210·2	211·3	212·3		213·4	214·0	214·7	215·5	215·8	216·0	216·3	2.6·2	215·8	215·6
																Mr 5	Mr 15	Mr 25	Ap 4
253·4	260·2	267·3	274·5	281·7	289·1	296·5	304·0	311·5	**1780**	319·0	326·4	333·9	341·3	348·7	356·0	3·2	10·5	17·6	24·7
158·1	172·4	188·9	206·2	223·6	240·0	253·5	262·2	262·0		254·8	251·8	258·5	271·7	287·8	305·7	323·8	341·7	358·1	11·6
168·0	170·1	172·4	174·3	176·5	178·2	180·1	181·8	183·1		184·4	185·3	185·9	186·3	186·3	186·0	185·5	184·4	183·4	182·1
169·5	181·9	194·5	207·1	219·6	232·1	244·8	257·4	270·1		282·7	295·2	307·6	320·1	332·5	344·7	357·0	8·5	21·0	33·0
213·2	214·3	215·4	216·6	217·8	219·1	220·3	221·4	222·5		223·5	224·4	225·2	226·1	226·5	226·9	227·2	227·3	227·3	227·0
O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
146·7	153·1	159·2	165·5	171·7	176·9	184·0	190·1	196·1	**1781**	202·4	208·3	214·4	220·7	226·2	232·0	237·7	243·1	248·5	254·0
168·3	184·7	203·1	219·8	234·5	244·7	247·0	240·8	235·7		240·3	251·6	267·5	284·1	302·2	320·4	336·6	350·5	358·5	357·4
191·3	193·7	195·9	197·9	200·2	202·4	204·4	206·6	208·5		210·3	211·9	213·4	214·6	215·5	216·2	216·6	216·3	216·5	215·9
128·0	137·1	147·5	157·6	169·1	180·0	191·6	203·6	215·5		227·5	239·9	252·3	264·6	276·9	289·3	301·7	314·2	326·6	339·0
223·1	224·2	225·2	226·2	227·4	228·6	229·7	230·8	232·0		233·1	234·1	235·1	236·1	236·7	237·3	238·0	238·1	238·3	238·3
282·0	287·3	293·2	299·2	305·6	312·0	318·4	325·2	332·0	**1782**	338·6	345·6	352·4	359·2	6·0	12·7	19·3	26·2	32·8	39·5
182·4	199·5	214·8	226·7	231·7	227·6	220·7	222·0	232·1		246·5	263·2	281·0	298·6	315·4	329·7	339·2	339·9	333·0	330·3
215·7	217·5	219·7	222·0	224·1	226·2	228·6	230·8	232·9		235·3	237·3	239·2	241·1	242·9	244·4	245·7	246·7	247·4	248·1
206·4	218·5	230·6	242·7	254·4	266·1	277·8	289·3	300·3		311·0	320·8	329·9	327·5	343·4	346·4	345·8	342·5	337·8	333·4
233·8	234·2	235·1	236·1	237·3	238·4	239·6	240·7	241·8		243·0	244·0	245·0	246·1	246·9	247·7	248·5	248·8	248·9	249·4
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
158·9	165·3	171·8	178·2	184·6	191·2	197·6	204·1	210·7	**1783**	217·1	223·9	230·5	237·2	243·8	250·8	257·3	264·0	270·8	277·6
195·0	208·3	215·6	213·9	206·4	204·6	213·0	226·4	242·5		259·8	277·3	294·2	309·4	320·1	322·9	316·9	312·0	316·7	329·2
241·8	243·8	245·1	247·2	249·1	251·3	253·5	255·8	258·1		260·4	262·6	265·0	267·2	269·3	271·4	273·4	275·3	276·9	278·3
151·5	163·6	176·4	188·4	201·0	213·5	226·2	238·9	251·5		264·2	276·7	289·4	301·9	314·6	327·0	339·5	351·9	4·3	16·7
243·4	244·4	245·2	246·9	247·2	248·2	249·3	250·6	251·8		252·9	254·0	255·1	256·2	257·0	257·9	258·8	259·3	259·7	260·3
																Mr 5	Mr 15	Mr 25	Ap 4
341·6	339·7	339·5	340·5	342·7	345·6	349·2	353·3	357·8	**1784**	2·7	8·0	13·4	19·0	24·8	30·4	36·5	42·5	48·4	54·5
198·6	199·6	192·6	188·7	194·6	206·6	221·8	239·1	256·5		273·7	289·0	300·9	305·8	300·9	294·6	297·5	308·2	323·6	341·2
271·2	272·1	273·3	274·4	276·1	277·8	279·8	281·9	284·0		286·3	288·6	290·9	293·2	295·7	298·0	300·5	302·7	304·9	306·7
193·5	189·9	184·7	181·4	181·0	184·1	190·2	198·2	206·8		217·2	227·8	238·8	250·1	261·8	273·5	285·6	297·6	309·5	321·7
253·9	254·6	255·3	256·1	257·1	258·1	259·1	260·3	261·4		262·6	263·8	265·1	266·2	267·1	268·1	269·1	269·7	270·5	271·0
O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
171·0	177·6	184·3	190·9	197·6	204·4	211·1	217·9	225·2	**1785**	231·8	238·9	246·0	253·1	260·4	267·6	275·0	282·4	289·7	297·2
178·7	172·9	176·3	187·1	201·9	218·7	235·9	253·0	268·9		281·8	288·7	286·2	279·0	278·9	287·7	302·0	319·2	337·5	356·0
308·1	305·7	305·7	306·0	306·7	309·5	308·7	310·3	311·9		313·8	315·9	318·1	320·3	322·8	325·1	327·5	329·9	332·2	334·7
188·7	201·1	213·6	226·0	238·5	250·8	263·3	275·7	288·1		300·3	312·4	324·4	336·2	347·8	359·1	10·1	20·6	30·7	39·4
264·7	265·2	265·8	266·3	267·3	268·1	269·1	270·3	271·5		272·6	273·8	275·0	276·1	277·2	278·3	279·4	280·2	281·1	281·9
O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
50·9	52·2	52·5	51·5	49·1	46·0	43·0	40·6	39·0	**1786**	38·8	39·7	41·5	44·3	47·6	51·6	55·7	60·5	65·5	70·5
158·1	167·4	181·9	198·1	215·4	232·7	248·9	262·7	271·4		271·1	263·9	261·3	267·9	281·3	297·5	315·5	333·8	351·5	8·4
346·3	345·0	343·9	342·8	342·3	342·0	342·0	342·4	343·2		344·1	345·6	347·2	348·8	350·8	352·9	355·1	357·5	359·9	2·2
135·2	147·0	158·9	170·9	183·2	195·5	207·7	220·3	233·5		245·4	258·2	270·8	282·9	295·8	308·5	321·0	333·4	345·9	358·4
275·9	276·2	276·6	276·9	277·7	278·6	279·4	280·5	281·6		282·7	283·9	285·1	286·2	287·4	288·7	289·8	290·7	291·6	292·6
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
183·5	190·2	197·0	204·0	210·9	217·9	224·9	232·1	239·4	**1787**	246·8	254·0	261·4	269·0	276·6	284·2	292·0	299·6	307·5	315·2
161·5	177·6	194·9	212·3	228·8	243·4	253·8	256·0	249·8		245·0	249·3	261·0	276·3	293·7	311·9	329·8	346·7	0·7	9·2
27·3	26·7	25·1	23·6	22·9	20·9	19·8	19·0	18·4		18·3	18·5	19·1	19·8	21·0	22·5	24·1	25·9	27·9	30·0
219·2	229·9	239·9	249·2	257·5	264·2	268·6	270·0	267·2		262·4	258·0	255·9	258·1	263·9	270·5	278·5	288·1	298·2	308·9
287·4	287·6	287·7	287·8	288·5	289·2	289·8	290·8	291·8		292·9	294·1	295·3	296·4	297·6	298·8	300·1	301·2	302·3	303·3
																Mr 5	Mr 15	Mr 25	Ap. 4
81·6	86·1	90·1	93·6	96·1	97·7	98·2	97·2	95·2	**1788**	92·1	88·3	84·7	81·8	80·0	79·8	80·9	82·9	85·8	89·4
173·5	191·1	208·8	223·9	236·0	240·4	236·9	229·8	231·1		241·3	255·7	272·4	290·2	308·1	325·2	339·7	349·7	350·6	343·9
64·2	64·3	63·4	63·1	62·1	61·0	59·6	58·2	57·0		55·8	54·7	54·1	53·6	53·6	54·0	54·6	55·5	56·8	58·2
170·2	182·6	195·2	207·8	220·3	232·8	245·5	258·1	270·7		283·3	295·8	308·3	320·7	333·1	345·4	357·6	8·9	21·5	33·5
299·7	299·6	299·4	299·4	299·9	300·3	300·8	301·7	302·6		303·4	304·6	305·8	306·9	308·1	309·4	310·6	311·9	313·1	314·2
O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
196·7	203·6	210·6	217·7	224·9	232·0	239·4	246·8	254·3	**1789**	261·9	269·5	277·2	285·1	292·7	300·8	308·4	316·3	324·3	332·2
188·3	204·3	217·5	224·5	223·1	215·3	214·0	221·4	235·6		251·7	269·5	286·8	304·0	319·1	330·0	333·2	327·1	322·2	326·7
95·7	96·6	97·5	97·8	98·0	97·6	97·1	96·2	95·0		93·8	92·5	91·2	89·9	88·8	87·9	87·4	87·2	87·3	87·8
127·8	137·1	147·9	157·9	169·7	180·4	192·1	204·1	216·1		228·1	240·5	252·9	265·3	277·6	290·0	302·4	314·9	327·3	339·7
312·3	312·1	311·9	311·6	311·7	311·9	312·3	313·1	313·8		314·5	315·6	316·7	317·8	319·0	320·2	321·5	322·8	324·0	325·3
100·6	106·2	111·8	116·1	120·6	124·5	128·1	130·5	132·0	**1790**	132·5	131·9	130·0	126·8	123·4	119·0	115·9	113·8	113·1	113·4
198·5	207·7	208·7	201·2	197·7	203·3	215·8	231·4	248·4		265·8	283·0	298·6	310·6	315·6	311·3	304·9	307·2	318·5	333·7
122·8	124·6	126·1	127·4	128·4	129·2	129·7	129·8	129·5		129·2	128·3	127·2	126·0	124·8	123·4	122·1	121·0	120·2	119·5
207·1	219·1	231·8	243·3	255·0	266·5	278·2	289·7	300·6		311·1	320·7	329·5	336·6	341·9	344·0	342·2	338·1	333·3	329·7
325·7	325·2	324·7	324·2	324·3	324·3	324·3	324·9	325·4		326·1	327·1	328·1	329·1	330·4	331·5	332·7	334·0	335·3	336·6

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1790	Mars ...	114·3	115·4	119·3	123·0	127·1	131·7	136·6	141·9	147·4	153·1	158·9	164·8	171·2	177·4	183·9	190·5	197·2	204·1
	Merc. ...	342·9	1·1	20·0	38·7	55·9	70·1	77·7	76·4	69·2	69·2	78·8	93·1	110·0	126·7	146·4	163·5	178·8	190·0
	Jup. ...	119·2	119·2	119·3	119·9	120·8	121·9	123·2	124·8	126·5	128·4	130·3	132·3	134·5	136·8	138·9	141·3	143·5	145·5
	Ven. ...	330·8	332·8	337·5	344·5	353·2	2·5	11·8	22·9	33·8	45·0	56·3	68·1	79·8	91·3	103·2	115·4	127·6	139·6
	Sat. ...	337·2	338·4	339·5	340·7	341·6	342·4	343·3	343·8	344·2	344·6	344·4	344·2	344·1	343·4	342·8	342·2	341·4	340·6
	Eng. date ...	Ap 0	Ap 10	Ap 20	My 0	My 10	My 20	Je 0	Je 10	Je 20	Jl 0	Jl 10	Jl 20	Au 0	Au 10	Au 20	S 0	S 10	S 20
1791	Mars ...	352·4	0·0	7·6	15·1	22·5	29·8	37·1	44·3	51·2	58·3	65·0	71·7	78·3	84·9	91·4	97·7	103·9	110·0
	Merc. ...	357·4	15·5	33·3	48·3	57·8	58·5	51·5	49·2	57·4	71·4	88·1	106·2	124·6	142·4	158·4	171·3	177·4	174·0
	Jup. ...	152·3	151·2	150·3	149·9	149·7	149·8	150·4	151·1	152·1	153·4	155·1	156·8	158·5	160·6	162·5	164·7	166·8	169·0
	Ven. ...	23·6	35·8	47·9	59·9	72·0	83·7	95·3	107·0	118·3	129·3	140·3	150·4	160·5	170·2	178·6	185·6	191·0	192·2
	Sat. ...	348·8	350·1	351·3	352·5	353·6	354·7	355·7	356·4	357·0	357·7	357·7	357·9	358·0	357·6	357·2	356·6	355·8	355·0
	Eng. date ...	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1792	Mars ...	146·8	145·6	145·7	146·8	149·2	152·0	155·7	160·1	164·7	169·9	175·4	181·1	187·0	193·2	199·6	206·2	212·9	220·0
	Merc. ...	11·1	26·7	37·5	39·7	33·3	29·7	36·0	49·3	65·7	83·3	102·4	120·7	137·6	151·7	159·5	159·2	151·6	150·1
	Jup. ...	186·1	184·8	183·5	182·4	181·4	180·5	180·0	179·8	179·8	180·4	181·3	182·1	183·5	185·0	186·7	188·4	190·5	192·6
	Ven. ...	328·6	340·8	353·1	5·3	17·4	29·6	41·7	54·2	66·3	78·4	90·5	103·0	114·5	127·5	139·9	152·3	164·7	177·0
	Sat. ...	0·5	1·8	3·1	4·4	5·6	6·8	8·0	8·8	9·7	10·6	10·9	11·3	11·8	11·6	11·3	11·1	10·5	9·8
	Eng. date ...	Ap 0	Ap 10	Ap 20	My 0	My 10	My 20	Je 0	Je 10	Je 20	Jl 0	Jl 10	Jl 20	Au 0	Au 10	Au 20	S 0	S 10	S 20
1793	Mars ...	7·8	15·2	22·6	29·7	37·0	44·2	51·1	58·1	65·1	71·7	78·4	85·0	91·6	98·1	104·5	110·9	117·1	123·3
	Merc. ...	16·5	21·1	15·7	10·3	14·4	27·0	45·0	61·2	80·2	98·6	116·1	131·2	141·6	143·2	136·6	132·4	138·1	150·7
	Jup. ...	220·1	219·2	218·0	216·7	215·6	214·2	212·9	211·8	211·0	210·6	210·3	210·5	210·8	211·5	212·7	213·8	215·4	217·0
	Ven. ...	43·7	50·2	54·8	55·4	52·3	46·7	41·5	39·1	36·4	45·1	51·7	60·2	69·6	79·4	89·9	101·0	112·2	123·8
	Sat. ...	12·5	13·3	15·1	16·5	17·2	19·1	20·4	21·5	22·5	23·6	24·2	24·9	25·5	25·7	25·7	25·7	25·3	24·9
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1794	Mars ...	197·1	194·1	190·4	187·7	185·3	184·8	185·3	187·0	189·7	193·3	197·3	202·0	207·4	212·9	218·9	225·1	231·5	238·2
	Merc. ...	358·3	351·6	353·9	5·1	20·5	38·4	56·9	75·7	93·6	110·1	121·5	125·8	120·8	115·1	118·1	130·3	145·5	162·5
	Jup. ...	252·6	252·8	252·4	252·0	251·0	250·0	248·7	247·4	246·0	244·8	243·7	242·8	242·2	242·0	242·0	242·5	243·3	244·3
	Ven. ...	5·5	17·9	30·2	42·6	54·8	66·9	79·2	91·2	103·3	115·2	127·2	139·2	151·0	162·8	174·4	186·1	197·5	208·6
	Sat. ...	24·9	26·2	27·5	28·7	30·1	31·5	32·9	34·1	35·3	36·5	37·4	38·2	39·0	39·4	39·8	40·2	39·9	39·8
	Eng. date ...	Ap 0	Ap 10	Ap 20	My 0	My 10	My 20	Je 0	Je 10	Je 20	Jl 0	Jl 10	Jl 20	Au 0	Au 10	Au 20	S 0	S 10	S 20
1795	Mars ...	22·7	29·8	36·9	43·9	50·8	57·7	64·5	71·2	77·9	84·4	91·2	97·5	104·0	110·5	116·9	123·2	129·5	135·8
	Merc. ...	334·3	343·3	358·0	15·8	34·4	53·5	72·0	88·6	101·7	107·9	104·3	97·9	99·2	109·8	124·4	141·5	159·3	176·9
	Jup. ...	283·0	284·3	285·4	285·8	286·1	286·1	285·8	284·9	284·0	282·7	281·5	280·1	278·8	277·5	276·6	275·9	275·4	275·5
	Ven. ...	315·1	326·3	337·7	349·2	1·2	12·9	24·8	36·7	48·7	60·8	72·6	84·9	96·9	109·1	121·3	133·8	146·2	158·4
	Sat. ...	37·4	38·7	40·0	41·4	42·7	44·0	45·4	46·7	48·0	49·2	50·3	51·4	52·5	53·1	53·7	54·3	54·4	54·3
	Eng. date ...	Ap 9	Ap 19	Ap 29	My 9	My 19	My 29	Je 8	Je 18	Je 28	Jl 8	Jl 18	Jl 28	Au 7	Au 17	Au 27	S 6	S 16	S 26
1796	Mars ...	243·5	246·6	248·7	249·9	250·5	249·7	247·5	245·2	242·7	240·7	239·7	239·3	241·8	244·4	248·2	252·5	257·7	263·1
	Merc. ...	38·3	353·1	11·4	30·3	49·0	67·2	80·5	88·9	87·4	80·2	79·8	88·8	102·6	120·0	137·9	155·7	172·7	188·1
	Jup. ...	311·8	313·8	315·6	317·3	318·7	319·8	320·7	321·2	321·4	321·1	320·5	319·7	318·7	317·4	316·0	314·7	313·3	312·2
	Ven. ...	40·0	51·4	62·8	73·4	83·9	93·7	102·8	110·6	117·1	120·8	120·8	117·3	111·5	106·5	104·6	106·7	111·8	118·9
	Sat. ...	50·3	51·6	52·8	53·9	55·2	56·5	57·7	58·2	60·6	62·0	63·2	64·4	65·6	66·4	67·3	68·1	68·5	69·2
	Eng. date ...	Ap 0	Ap 10	Ap 20	My 0	My 10	My 20	Je 0	Je 10	Je 20	Jl 0	Jl 10	Jl 20	Au 0	Au 10	Au 20	S 0	S 10	S 20
1797	Mars ...	37·3	44·0	50·8	57·5	64·2	70·8	77·3	83·9	90·3	96·9	103·3	109·6	116·1	122·4	128·9	135·1	141·3	147·9
	Merc. ...	348·8	7·6	26·3	43·7	59·0	68·9	69·7	62·8	60·2	67·8	81·4	98·1	116·0	134·3	152·0	167·4	180·7	186·6
	Jup. ...	339·9	342·2	344·5	346·7	348·8	350·7	352·4	354·1	355·4	356·4	357·1	357·5	357·7	357·3	356·7	355·8	354·6	353·2
	Ven. ...	346·1	359·3	11·8	23·9	36·4	48·7	61·0	73·0	85·3	97·7	109·9	122·0	134·1	146·4	159·0	171·2	183·4	195·6
	Sat. ...	63·5	64·5	65·6	66·6	67·9	69·2	70·4	71·8	73·1	74·4	75·7	77·0	78·3	79·4	80·5	81·5	82·1	82·7
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1798	Mars ...	272·4	278·3	284·4	290·3	295·8	301·3	306·0	310·5	314·3	317·4	319·6	320·1	319·8	317·9	315·4	313·2	311·7	311·2
	Merc. ...	3·6	21·4	37·1	48·2	51·1	44·6	40·7	48·5	59·5	75·8	93·9	112·5	130·6	147·3	161·4	169·5	166·8	161·6
	Jup. ...	7·6	10·0	12·4	14·7	17·1	19·5	21·7	23·8	25·8	27·7	29·5	31·0	32·1	33·1	33·7	33·8	33·8	33·5
	Ven. ...	328·0	331·0	336·4	344·0	353·0	2·5	11·7	29·1	34·1	45·4	56·8	68·6	80·2	91·8	103·8	116·0	128·2	140·3
	Sat. ...	77·0	77·8	78·6	79·5	80·6	81·8	83·0	84·3	85·6	86·9	88·3	89·6	91·1	92·2	93·3	94·5	95·4	96·2
	Eng. date ...	Ap 0	Ap 10	Ap 20	My 0	My 10	My 20	Je 0	Je 10	Je 20	Jl 0	Jl 10	Jl 20	Au 0	Au 10	Au 20	S 0	S 10	S 20
1799	Mars ...	62·0	58·4	64·7	71·1	77·2	83·7	90·0	96·1	102·6	108·9	115·2	121·6	127·8	134·6	140·7	147·0	153·4	159·7
	Merc. ...	14·9	27·3	31·8	26·5	21·3	25·5	37·4	53·4	71·5	90·2	108·7	126·1	141·2	151·0	152·8	146·0	142·1	148·0
	Jup. ...	34·9	37·2	39·5	41·8	44·4	46·6	49·0	51·2	53·5	55·9	58·0	60·1	62·0	63·7	65·3	66·7	67·7	68·5
	Ven. ...	24·2	36·4	48·5	60·5	72·6	84·3	95·8	107·5	118·7	129·7	140·6	150·7	160·7	170·0	178·2	184·8	189·7	189·9
	Sat. ...	90·6	91·1	91·7	92·3	93·4	94·4	95·4	96·1	97·9	99·1	100·5	101·9	103·2	104·4	105·1	106·9	107·9	109·0
	Eng. date ...	Ap 0	Ap 10	Ap 20	My 0	My 10	My 20	Je 0	Je 10	Je 20	Jl 0	Jl 10	Jl 20	Au 0	Au 10	Au 20	S 0	S 10	S 20
1800	Mars ...	292·5	300·8	308·0	315·3	322·4	329·4	336·5	343·2	350·0	356·8	2·4	8·2	13·5	18·5	22·6	26·1	28·5	29·7
	Merc. ...	12·6	9·6	2·8	4·7	15·6	30·9	48·9	67·6	86·6	103·9	120·2	132·3	136·0	131·0	125·2	128·7	140·1	155·0
	Jup.	64·0	64·6	66·5	68·4	70·5	72·6	75·0	77·2	79·6	81·9	84·2	86·5	88·6	90·9	92·9	94·8	96·6	98·2
	Ven. ...	329·3	341·4	353·7	6·0	18·1	30·3	42·4	54·9	67·0	79·1	91·2	103·7	115·0	128·2	140·6	153·1	165·5	177·7
	Sat. ...	104·4	104·6	104·9	105·3	106·1	107·0	107·7	108·8	110·0	111·6	112·5	113·8	115·0	116·3	117·6	119·9	120·0	121·1
	Eng. date ...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1801	Mars ...	67·1	72·8	78·6	84·5	90·6	96·6	102·7	108·6	114·9	120·9	127·3	133·5	139·9	146·1	152·6	159·1	165·4	172·1
	Merc. ...	345·0	344·5	353·5	8·4	25·8	44·7	63·7	82·0	98·8	112·1	118·4	115·2	108·2	109·3	119·7	134·2	151·0	168·7
	Jup. ...	92·4	93·2	94·2	95·5	97·1	98·8	100·8	102·8	104·9	107·0	109·3	111·4	113·7	115·9	118·1	120·3	123·4	124·6
	Ven. ...	48·3	49·5	53·1	53·2	49·0	42·8	37·7	36·2	33·6	41·1	51·2	59·9	69·6	79·6	90·2	101·4	112·6	124·3
	Sat. ...	118·3	118·2	118·2	118·3	119·0	119·6	120·1	121·1	122·1	123·1	124·3	125·6	126·9	128·2	129·5	130·7	131·9	133·1

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
211·0	217·8	225·0	232·3	239·6	247·2	254·6	262·3	269·9	**1791**	277·7	285·6	293·3	301·2	309·2	317·0	324·9	332·8	340·6	348·5
193·5	188·0	182·1	185·3	196·5	211·2	227·5	245·2	262·3		278·3	291·3	298·1	295·8	288·5	288·3	297·7	311·0	329·2	347·6
147·8	149·8	151·8	153·6	155·2	156·6	157·9	159·1	159·7		160·3	160·4	160·2	159·7	158·8	157·8	156·6	155·4	154·0	152·7
152·2	164·3	177·2	189·0	201·6	214·1	226·8	239·6	252·2		264·9	277·4	290·1	302·6	315·3	327·7	340·1	352·6	4·9	17·3
339·7	339·0	338·4	337·7	337·4	337·2	337·1	337·4	337·8		338·2	339·0	339·9	340·7	341·8	343·0	344·2	345·5	346·8	348·0
																Mr 5	Mr 15	Mr 25	Ap 4
116·0	121·8	127·5	133·0	138·3	143·3	148·0	152·4	156·3	**1792**	159·6	162·3	164·0	164·6	163·8	161·7	158·5	154·7	150·9	147·8
166·9	167·2	177·0	190·9	207·2	224·6	241·7	258·2	271·9		280·5	280·7	273·2	270·7	277·8	291·0	307·3	325·3	343·8	1·9
171·1	173·3	175·5	177·7	179·8	181·6	183·6	185·2	186·7		188·0	189·1	189·8	190·3	190·5	190·3	189·8	189·1	188·0	186·8
190·2	185·8	180·6	178·2	178·8	182·8	189·4	197·9	206·8		217·3	228·0	239·1	250·4	262·2	274·0	286·1	298·1	310·0	322·3
354·2	353·4	350·6	351·8	351·4	350·9	350·6	350·6	350·8		350·9	351·5	352·2	352·8	353·9	355·0	356·0	357·2	358·5	359·8
O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
226·7	233·7	241·0	248·4	255·8	263·5	271·1	278·6	286·5	**1793**	294·3	302·1	310·0	317·7	325·6	333·3	341·0	348·7	356·3	3·8
157·5	170·9	187·0	204·1	221·6	237·9	252·6	263·0	265·2		259·0	254·1	258·6	270·4	285·9	303·3	321·6	339·6	356·6	11·2
194·7	196·8	199·1	201·2	203·3	205·7	207·8	209·9	211·7		213·7	215·3	216·9	218·4	219·4	220·2	220·7	220·9	221·0	220·3
189·5	201·8	214·3	226·7	239·2	251·5	263·9	276·4	288·7		300·9	313·0	325·0	336·7	348·3	359·5	10·4	20·8	30·7	39·1
9·1	8·3	7·5	6·6	6·0	5·3	4·7	4·6	4·4		4·2	4·6	5·1	5·5	5·4	7·3	8·1	9·3	10·6	11·8
129·4	135·5	141·4	147·3	153·0	158·8	164·1	169·5	174·8	**1794**	179·6	184·4	188·7	192·6	195·9	198·4	200·4	200·9	200·6	198·7
166·6	183·4	201·0	217·8	233·8	244·9	249·6	245·4	238·6		240·3	250·7	265·7	282·0	299·9	317·9	335·0	349·9	0·2	1·5
219·0	220·9	223·1	225·1	227·4	229·6	231·8	234·2	236·3		238·5	240·7	242·7	244·6	246·5	248·2	249·5	250·7	251·4	252·4
135·8	147·6	159·6	171·5	183·8	196·1	208·3	220·9	234·4		246·1	258·9	271·5	283·6	296·4	309·2	321·7	334·1	346·6	359·1
24·4	23·6	24·5	22·0	21·2	20·5	19·6	19·1	18·7		18·3	18·4	18·6	18·7	19·4	20·2	20·9	22·0	23·1	24·2
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
245·0	252·0	259·2	266·5	274·0	281·4	289·1	296·7	304·3	**1795**	311·9	319·9	327·1	334·7	342·2	349·6	357·1	4·4	11·6	18·9
179·6	191·5	213·4	226·4	233·7	232·0	224·6	222·9	230·9		244·9	261·1	278·8	296·5	313·7	328·9	340·0	343·6	337·7	332·7
245·6	247·1	248·7	250·7	252·6	254·7	257·0	259·2	261·5		263·9	266·1	268·4	270·7	273·0	275·0	277·2	279·1	280·8	282·3
219·5	230·0	239·8	248·9	256·9	263·1	266·8	267·2	263·3		258·0	253·9	253·1	256·2	261·8	270·1	278·3	288·0	298·4	309·1
39·5	38·9	38·2	37·4	36·6	35·8	34·9	34·3	33·7		33·0	32·8	32·7	32·6	33·1	33·5	33·9	34·9	35·8	36·8
																Mr 5	Mr 15	Mr 25	Ap 4
142·1	148·2	154·5	160·5	166·5	172·6	178·7	184·6	190·5	**1796**	196·4	202·2	207·7	213·2	218·7	223·8	228·9	233·5	237·8	241·7
193·6	207·7	217·0	217·5	210·5	206·4	212·7	225·0	240·5		257·8	275·3	292·6	308·2	320·4	325·8	321·3	315·2	317·3	328·3
275·8	276·3	277·4	278·5	280·1	281·8	283·6	285·6	287·7		290·0	292·4	294·6	296·8	299·4	301·6	304·0	306·3	308·7	310·8
170·9	183·3	195·9	208·5	221·0	233·5	246·2	258·8	271·4		284·0	296·5	309·0	321·4	333·7	346·0	358·2	9·3	22·0	34·0
54·4	54·0	53·5	53·0	52·2	51·4	50·5	49·8	49·0		48·2	47·9	47·5	47·0	47·3	47·4	47·6	48·3	49·0	49·7
O 6	O 16	O 26	N 5	N 15	N 25	D 5	D 15	D 25		Ja 4	Ja 14	Ja 24	F 3	F 13	F 23	Mr 5	Mr 15	Mr 25	Ap 4
269·0	275·3	281·7	288·5	295·4	302·2	309·3	316·3	323·5	**1797**	330·6	337·8	345·0	352·1	359·0	6·1	13·0	20·0	26·9	33·8
199·2	202·6	196·9	191·4	194·5	205·4	220·0	236·9	254·4		271·7	287·7	300·9	307·8	305·5	298·4	298·4	307·4	322·0	339·1
311·4	310·8	310·6	310·8	311·2	311·9	313·0	314·4	315·9		317·5	319·7	321·9	324·2	326·5	328·7	331·2	333·6	336·0	338·5
127·6	137·0	148·2	158·2	170·3	180·8	192·6	204·6	216·7		228·7	241·1	253·6	265·2	278·2	290·7	303·0	315·5	328·0	340·8
69·2	69·0	68·7	68·6	67·9	67·2	66·5	65·6	64·8		63·9	63·3	62·6	61·9	61·8	61·7	61·6	62·1	62·5	63·0
154·2	160·6	167·0	173·2	179·7	186·6	192·3	198·7	205·7	**1798**	211·4	218·0	224·3	230·7	237·2	243·6	249·9	256·4	262·7	269·0
184·9	176·1	176·6	186·2	200·1	216·5	233·8	251·2	267·9		281·3	290·2	290·1	283·0	279·7	287·4	300·0	317·1	335·2	353·8
352·0	350·5	348·3	348·2	347·4	346·9	346·9	347·1	347·8		348·7	349·8	351·3	353·0	354·9	356·9	359·2	1·5	3·6	5·2
207·8	219·8	231·9	243·9	255·5	267·1	278·6	290·1	300·8		311·2	320·6	329·1	335·7	340·3	341·5	338·7	338·7	328·8	326·0
83·4	83·4	83·4	83·4	82·9	82·5	82·0	81·1	80·3		79·5	78·7	78·0	77·2	76·8	76·4	76·0	76·2	76·4	76·5
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
312·0	314·0	317·3	320·9	325·4	330·3	335·3	341·0	346·5	**1799**	352·6	358·6	4·7	10·9	17·1	23·3	29·6	35·9	42·4	48·7
159·2	166·8	180·2	196·1	213·2	230·6	247·2	261·9	272·2		274·5	268·2	263·5	267·9	279·9	295·6	313·3	331·6	349·8	6·8
32·7	31·6	30·5	29·1	27·7	26·4	25·2	24·3	23·6		23·3	23·2	23·7	24·4	25·3	26·7	28·2	29·9	31·8	33·9
152·8	164·9	178·0	189·7	202·3	214·8	227·5	240·3	252·9		265·6	278·1	290·7	303·3	315·9	328·3	340·7	353·2	5·6	17·9
97·0	97·3	97·5	97·9	97·7	97·4	97·2	96·5	95·7		95·0	94·2	93·3	92·5	91·9	91·3	90·6	90·6	90·5	90·4
166·3	172·8	179·3	186·0	192·5	199·3	205·8	212·6	219·3	**1800***	226·2	233·0	240·1	247·0	254·1	261·0	268·2	275·4	282·6	289·9
160·1	175·6	192·7	210·2	227·0	242·3	254·0	258·7	254·2		247·7	249·8	260·9	274·6	291·6	309·6	327·9	344·9	0·1	10·6
69·0	69·0	68·8	68·4	67·5	65·3	64·9	63·7	62·3		61·0	59·9	59·7	58·6	58·3	58·5	58·9	59·8	60·9	62·3
187·0	181·7	176·6	175·0	176·6	181·5	188·7	197·6	206·8		217·4	228·1	239·5	250·8	262·6	274·5	286·6	298·7	310·6	322·9
110·0	110·5	111·1	111·6	111·7	111·7	111·7	111·2	110·6		110·0	109·2	108·4	107·7	106·9	106·1	105·8	105·0	104·7	104·8
29·6	28·2	25·9	23·1	21·0	19·4	18·3	18·6	20·3	**1801**	22·6	25·5	29·1	33·2	37·8	42·7	47·8	53·1	58·5	64·0
171·5	189·0	206·9	222·6	235·7	242·5	240·9	233·3	231·9		240·3	254·1	270·5	288·1	306·0	323·4	339·0	350·5	353·9	348·5
99·3	100·8	101·7	102·1	102·3	102·4	101·8	101·2	100·2		98·9	97·5	96·2	94·9	93·8	92·9	92·1	91·8	91·6	92·1
190·2	202·5	215·0	227·4	239·8	252·2	264·6	277·1	289·3		301·5	313·6	325·6	337·2	348·8	359·8	10·8	21·1	30·7	38·7
122·3	123·1	123·9	124·7	125·0	125·2	125·5	125·3	125·0		124·7	124·0	123·3	122·5	121·8	121·0	120·2	119·6	119·0	118·4
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
178·7	185·4	192·0	198·8	205·6	212·6	219·4	226·5	233·6	**1802**	240·8	248·2	255·5	262·8	270·2	277·9	285·4	293·0	300·6	308·4
186·3	202·9	216·8	225·8	226·6	219·4	215·8	221·6	234·0		249·8	267·0	285·0	302·0	318·0	330·3	335·8	332·1	325·5	327·4
126·5	128·1	129·8	131·1	132·3	133·1	133·9	134·2	133·9		133·7	133·9	132·0	130·7	129·5	128·2	126·9	125·7	124·6	123·8
136·3	148·1	160·3	172·1	184·5	196·7	209·0	221·6	235·2		246·8	259·5	272·2	284·8	297·1	309·8	322·4	334·7	347·8	359·7
134·8	135·3	136·2	137·3	137·7	138·3	138·8	138·7	138·7		138·5	138·0	137·4	136·9	136·1	135·3	134·5	133·8	133·1	132·4

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Srav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

* The year A.D. 1800 was not a leap year except in Russia.

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
	Eng. date ...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	A 9	A 19	A 29	S 8	S 18	S 28
1802	Mars ...	312·3	319·9	327·6	335·3	342·8	350·4	357·7	5·1	12·3	19·4	26·1	33·0	39·3	45·6	51·7	57·2	62·2	67·3
	Merc. ...	332·8	346·2	8·2	21·7	40·7	59·5	76·7	91·0	99·5	98·2	91·1	90·0	99·1	113·0	129·8	147·4	165·3	182·5
	Jup. ...	123·6	123·4	123·5	123·8	124·5	125·5	126·9	128·2	129·9	131·7	133·7	135·7	137·9	140·1	142·1	144·4	146·6	148·9
	Ven. ...	6·2	18·5	30·9	43·3	55·5	67·6	79·9	91·8	103·9	115·9	127·8	139·8	151·5	163·3	174·9	186·6	197·9	208·9
	Sat. ...	132·1	131·8	131·8	131·4	131·8	132·1	132·5	133·3	134·1	134·9	136·1	137·2	138·4	139·7	140·9	142·2	143·4	144·7
1803	Mars ...	83·5	88·8	93·7	99·1	104·4	110·0	115·9	121·7	127·7	133·7	139·7	146·1	152·2	158·6	165·0	171·6	178·1	184·8
	Merc. ...	340·9	359·0	17·9	36·5	54·4	69·5	79·4	80·5	73·6	70·9	78·7	91·6	108·1	125·5	144·2	161·5	177·5	190·0
	Jup. ...	156·8	155·8	154·9	154·1	154·0	154·2	154·2	154·9	155·9	157·0	158·4	160·0	162·0	163·9	165·7	167·8	170·1	172·2
	Ven. ...	315·4	326·7	338·1	349·7	1·7	13·5	25·4	37·3	49·3	61·4	73·2	85·6	97·6	109·8	122·0	134·4	146·9	159·1
	Sat. ...	145·8	145·3	144·8	144·5	144·6	144·.	144·7	145·3	146·0	146·6	147·6	148·6	149·6	150·8	152·0	153·2	154·5	155·8
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	A 8	A 18	A 28	S 7	S 17	S 27
1804	Mars ...	329·6	337·5	345·3	353·0	0·5	8·1	15·4	22·8	30·1	37·2	44·1	51·0	57·5	64·2	70·5	76·7	82·7	88·5
	Merc. ...	355·2	13·8	31·8	47·5	59·0	62·1	56·2	51·7	57·1	69·9	86·1	104·1	122·4	140·6	156·9	170·9	179·0	178·2
	Jup. ...	190·9	189·5	188·1	187·1	185·9	185·0	184·2	184·1	184·0	184·3	185·0	185·9	187·1	188·4	190·1	191·9	193·8	195·7
	Ven. ...	40·5	51·9	63·2	73·7	84·1	93·8	102·7	110·1	116·2	119·3	118·3	113·9	107·5	102·8	101·8	105·0	110·7	118·4
	Sat. ...	159·3	158·6	158·0	157·4	157·2	157·1	157·0	157·3	157·7	158·1	159·0	159·8	160·6	161·7	162·8	163·9	165·2	166·4
	Eng. date ...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1805	Mars ...	104·5	107·4	111·3	115·5	120·1	125·1	130·5	135·9	141·4	147·2	153·3	159·2	165·6	171·8	178·4	184·8	191·5	198·4
	Merc. ...	9·3	25·6	38·0	43·5	38·5	32·7	36·3	47·9	63·8	81·8	100·4	118·7	136·0	150·9	161·1	162·8	156·1	151·9
	Jup. ...	224·7	223·8	222·8	221·5	220·3	218·9	217·7	216·5	215·7	214·9	214·6	214·6	215·0	215·5	216·4	217·6	219·1	220·8
	Ven. ...	346·6	0·0	12·4	24·6	37·2	49·3	61·8	73·7	86·0	98·4	110·5	122·7	134·8	147·0	159·8	172·0	184·1	196·3
	Sat. ...	172·4	171·7	171·0	170·3	169·9	169·5	169·2	169·3	169·5	169·6	170·3	170·9	171·6	172·6	173·7	174·7	175·9	177·1
1806	Mars ...	346·1	353·9	1·5	9·0	16·6	24·0	31·3	38·5	45·6	52·5	59·5	66·1	72·9	79·3	85·9	92·1	98·3	106·3
	Merc. ...	16·7	23·6	20·5	13·8	15·1	26·0	41·3	59·2	77·8	96·3	114·1	130·2	142·2	148·4	141·1	135·1	138·4	149·3
	Jup. ...	256·9	257·1	257·2	256·7	256·1	255·1	253·9	252·5	251·1	249·9	248·7	247·6	247·0	246·6	246·4	246·8	247·3	248·2
	Ven. ...	325·4	329·2	335·5	343·5	352·7	2·4	11·7	23·4	34·5	45·9	57·3	69·1	80·7	92·4	104·4	116·5	128·8	140·9
	Sat. ...	185·2	184·4	183·6	182·8	182·3	181·8	181·2	181·2	181·2	181·1	181·5	181·9	182·5	183·3	184·2	185·1	186·2	187·4
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1807	Mars ...	132·4	132·8	134·1	136·4	139·5	143·3	147·6	152·8	157·5	162·7	168·5	174·3	180·4	186·7	193·1	199·7	206·5	213·2
	Merc. ...	2·9	355·5	355·2	4·2	19·0	36·3	54·5	73·6	91·8	109·0	121·6	128·6	125·3	118·3	119·7	129·2	144·0	160·7
	Jup. ...	287·0	288·5	289·5	290·4	290·7	291·0	290·7	290·0	289·2	288·2	286·8	285·5	284·1	282·9	281·8	280·9	280·4	280·0
	Ven. ...	24·9	37·0	49·1	61·1	73·1	84·8	96·4	107·9	119·1	130·1	140·9	151·1	161·0	169·9	177·7	184·0	187·5	187·5
	Sat. ...	197·7	196·9	196·0	195·3	194·6	194·0	193·3	193·1	192·9	192·5	192·8	193·0	193·3	194·0	194·8	195·5	196·6	197·6
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1808	Mars ...	1·7	9·5	16·8	24·2	31·4	38·5	45·7	52·8	59·7	66·5	73·3	79·9	86·5	93·0	99·5	105·8	112·0	118·3
	Merc. ...	335·8	342·8	356·5	13·6	32·2	51·3	69·8	87·2	101·3	109·9	109·1	101·8	100·6	108·9	123·0	139·4	157·2	174·8
	Jup. ...	315·8	317·8	319·6	321·4	322·9	324·1	325·2	325·8	326·1	326·1	325·9	325·2	324·1	323·0	321·6	320·4	318·9	317·7
	Ven. ...	329·8	342·0	354·2	6·6	18·7	30·9	43·1	55·4	67·5	79·9	91·9	104·4	115·9	128·9	141·2	153·6	166·1	178·3
	Sat. ...	204·8	204·1	203·3	207·6	206·8	205·9	205·3	204·9	204·5	204·1	204·1	204·1	204·1	204·7	205·3	205·8	206·7	207·6
	Eng. date ...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1809	Mars ...	175·7	172·4	169·9	168·1	168·0	169·2	171·5	174·6	178·3	182·7	187·6	192·8	198·6	204·5	210·6	216·5	223·6	230·5
	Merc ...	334·9	351·0	9·1	28·0	48·0	64·7	80·0	90·3	91·6	84·6	81·5	88·5	101·6	118·0	135·6	153·6	171·2	187·0
	Jup. ...	343·8	345·1	348·4	350·7	352·8	354·9	356·7	358·4	359·7	1·0	1·9	2·5	2·7	2·5	2·1	1·2	0·2	358·8
	Ven. ...	42·5	47·9	50·7	49·9	45·4	39·4	31·1	34·6	37·6	43·6	51·0	59·8	69·7	79·9	90·5	101·7	113·0	124·9
	Sat. ...	221·6	220·9	220·3	219·6	218·8	218·0	217·3	216·6	216·0	215·5	215·3	215·3	215·1	215·4	215·8	216·2	217·0	217·9
1810	Mars ...	15·9	24·1	31·2	38·3	45·3	52·4	59·2	65·0	72·9	79·5	86·3	92·7	99·2	105·6	112·4	118·4	124·7	130·9
	Merc. ...	348·6	5·2	24·1	42·2	58·2	70·0	73·4	67·5	62·4	68·1	80·0	96·1	113·9	132·1	150·0	166·1	180·3	188·4
	Jup. ...	11·3	13·7	16·1	18·5	20·8	22·2	25·5	27·7	29·7	31·7	33·4	35·1	36·5	37·5	38·3	38·6	39·0	38·6
	Ven. ...	6·9	19·1	31·5	43·9	56·1	68·2	80·4	92·3	104·5	116·5	128·4	140·4	152·1	163·7	175·4	186·9	198·2	209·2
	Sat. ...	233·1	232·7	232·3	231·4	230·6	229·8	229·1	228·4	227·7	226·8	226·7	226·3	226·0	226·2	226·4	226·6	227·3	227·9
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1811	Mars ...	228·1	228·6	228·0	226·5	223·9	221·1	218·5	216·7	216·3	216·6	218·4	221·4	225·0	229·5	234·4	240·0	245·9	252·0
	Merc. ...	1·4	19·6	35·9	48·5	54·1	50·0	43·7	47·0	58.4	74·0	91·7	110·3	128·5	145·6	161·0	170·7	172·4	165·7
	Jup. ...	38·8	40·9	43·0	45·5	47·7	50·1	52·5	54·8	57·1	59·4	61·8	63·8	65·9	67·7	69·4	70·7	72·0	72·8
	Ven. ...	315·8	327·0	338·5	350·2	2·5	14·1	26·0	37·9	49·8	62·0	73·9	86·2	98·1	110·4	122·7	135·0	147·5	159·7
	Sat. ...	214·4	244·0	243·7	243·4	242·6	241·9	241·1	240·3	239·5	238·8	238·3	237·8	237·3	237·2	237·2	237·2	237·8	238·3
	Eng. date ...	Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1812	Mars ...	31·5	38·6	45·3	52·1	58·9	65·7	72·4	78·8	85·3	91·9	98·4	104·9	111·3	117·9	124·1	130·4	136·7	143·1
	Merc. ...	13·8	27·5	34·3	31·9	24·9	26·2	36·4	51·7	69·4	88·2	106·5	124·4	140·2	151·9	156·0	151·0	144·9	147·9
	Jup. ...	64·9	68·5	70·3	72·2	74·1	76·2	68·5	80·7	83·1	85·4	87·6	90·0	92·2	94·3	96·3	98·4	100·4	102·0
	Ven. ...	40·8	52·2	63·4	73·9	84·1	93·7	102·2	109·3	114·6	116·9	115·3	110·1	104·3	100·5	100·3	104·1	110·1	118·0
	Sat. ...	255·3	255·1	254·9	254·8	254·1	253·5	252·9	252·2	251·4	250·6	250·0	249·3	248·7	248·5	248·3	248·1	248·4	248·8
	Eng. date ...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1813	Mars ...	262·3	267·7	272·7	276·8	281·1	284·9	287·7	291·0	291·2	291·0	289·9	287·0	282·9	282·8	281·6	282·5	284·3	287·1
	Merc. ...	14·3	14·0	6·8	5·7	14·9	29·3	46·7	65·3	84·2	102·5	119·0	132·2	138·7	135·7	129·4	129·4	139·3	153·2
	Jup. ...	96·5	97·2	98·1	99·4	100·8	102·6	104·3	106·4	108·4	110·5	112·6	114·7	117·2	119·4	121·7	123·8	125·9	128·1
	Ven. ...	347·4	0·6	13·0	25·2	37·9	50·0	62·3	74·5	86·7	98·9	111·2	123·3	135·4	147·6	160·3	172·5	184·6	196·8
	Sat. ...	266·3	266·4	266·4	266·4	265·9	265·4	264·9	264·4	263·8	263·2	262·5	261·8	261·1	260·4	260·1	259·7	259·3	259·4	259·6

Mesh.	Vrish.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·6	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
73·8	75·6	78·7	80·8	82·0	81·9	80·5	77·8	74·3	**1803**	70·7	67·9	65·9	65·2	65·9	67·5	70·2	73·4	77·3	81·4
197·4	208·4	211·6	206·1	200·3	203·2	214·4	229·5	248·1		263·7	281·0	297·2	310·4	317·8	315·9	308·8	308·0	317·6	331·9
150·9	152·9	155·0	156·9	158·7	160·2	161·7	162·8	163·7		164·2	164·5	164·5	164·0	163·4	162·5	161·3	160·0	158·8	157·4
219·7	230·1	239·8	248·6	256·3	262·0	265·0	264·2	259·4		253·6	249·8	250·3	254·4	260·7	269·7	278·1	288·0	298·5	309·3
146·0	147·0	148·1	149·1	150·0	150·5	151·2	151·4	151·5		151·8	151·4	151·0	150·7	150·0	149·3	148·5	147·8	147·0	146·2
																Mr 6	Mr 16	Mr 26	Ap 5
191·6	198·4	205·3	212·3	219·3	226·5	233·7	241·0	248·4	**1804**	255·9	263·5	271·0	278·7	286·5	294·2	302·1	309·9	317·9	325·6
195·7	192·6	185·3	186·1	195·4	209·3	225·7	243·0	260·4		276·8	290·7	299·6	300·1	292·6	289·9	297·1	310·1	327·0	345·3
174·3	173·5	178·8	180·8	182·9	185·0	186·9	188·7	190·2		191·5	192·7	193·7	194·2	194·6	194·6	194·1	193·5	192·6	191·4
171·8	184·0	196·6	209·2	221·7	234·2	246·9	259·5	272·0		284·6	297·2	309·7	322·0	334·3	346·6	358·8	9·7	22·5	34·5
157·0	158·1	159·7	160·4	161·3	162·1	163·0	163·4	163·8		164·2	164·1	164·0	163·8	163·2	162·6	162·0	161·2	160·4	159·6
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 16		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
94·0	99·2	103·9	108·4	112·1	115·3	117·8	119·1	119·7	**1805**	118·9	116·7	113·7	109·8	106·0	103·0	100·9	100·5	101·2	103·2
170·8	168·2	176·1	189·4	205·4	222·5	239·7	256·5	271·1		281·3	283·9	277·8	272·9	277·5	289·6	305·3	323·2	341·6	359·8
197·8	200·1	202·2	204·4	206·7	208·8	211·1	213·2	215·1		217·1	218·9	220·5	222·1	223·2	224·1	224·9	225·2	225·3	224·9
127·4	137·1	148·5	158·5	170·9	181·2	193·1	205·1	217·2		229·3	241·7	254·2	266·5	278·9	291·4	303·7	316·2	328·7	341·0
167·7	168·4	170·1	171·2	172·2	173·2	174·2	174·8	175·4		176·0	176·1	176·2	176·3	175·9	175·5	175·1	174·3	173·6	172·8
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
205·5	212·2	219·2	226·3	233·7	241·1	248·5	255·7	263·7	**1806**	271·5	279·1	287·0	294·8	302·7	310·6	318·4	326·4	334·2	342·0
157·4	169·6	185·1	202·0	219·4	236·3	251·5	263·2	268·7		263·7	257·0	259·0	269·4	284·1	301·3	319·5	337·8	355·2	10·5
222·5	224·5	226·5	228·5	230·8	233·0	235·4	237·5	239·8		242·0	244·3	246·3	248·4	250·2	252·0	253·4	254·8	255·8	256·6
208·5	220·4	232·5	244·4	256·1	267·6	279·1	290·4	301·1		311·3	320·5	328·6	334·9	338·7	339·0	335·3	329·2	324·3	322·2
178·2	179·4	180·5	181·9	182·9	184·0	185·1	185·8	186·6		187·4	187·5	187·9	188·2	188·0	187·7	187·5	186·9	186·3	185·7
110·2	116·0	121·5	126·7	131·8	136·5	140·8	144·4	147·7	**1807**	149·9	151·5	151·7	150·7	148·3	144·7	141·2	137·5	134·5	133·0
164·5	181·3	198·7	215·9	231·7	244·6	251·6	249·8	242·0		241·2	249·9	263·4	279·8	297·5	315·8	333·2	349·0	0·9	4·8
249·4	250·9	252·5	254·3	256·2	258·3	260·4	262·8	265·0		267·3	269·6	272·0	274·2	276·6	278·8	280·9	282·8	284·8	286·3
153·4	165·6	178·9	190·4	202·9	215·5	228·1	240·9	253·5		266·2	278·7	291·3	304·0	316·6	328·9	341·4	353·9	6·3	18·6
188·5	189·7	190·9	192·1	193·2	194·5	195·5	196·3	197·2		198·1	198·6	199·1	199·6	199·6	199·6	199·6	199·0	198·5	198·0
																Mr 6	Mr 16	Mr 26	Ap 5
220·2	227·3	234·8	241·8	249·2	256·8	264·4	272·2	279·9	**1808**	287·6	295·5	303·4	311·3	319·0	326·9	334·8	342·5	350·1	357·9
177·7	195·5	212·0	225·8	235·0	235·5	228·5	224·5	230·3		243·4	259·2	276·6	294·4	311·8	327·8	340·3	346·4	342·5	336·0
280·3	280·7	281·5	282·7	284·0	285·5	287·3	289·4	291·5		293·7	295·9	298·3	300·6	302·9	305·4	307·8	310·1	312·4	314·6
183·8	177·4	172·5	171·8	174·5	180·2	187·9	197·2	206·8		217·4	228·3	239·8	251·3	263·1	275·0	287·2	299·3	311·2	323·4
198·7	199·9	201·1	202·2	203·4	204·6	205·7	206·7	207·7		208·6	209·3	209·9	210·6	210·8	211·0	211·1	210·8	210·5	210·0
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
124·3	130·2	136·0	142·7	147·4	152·9	158·2	163·0	167·9	**1809**	172·4	176·3	179·9	182·7	184·6	185·8	185·5	183·9	180·8	177·3
191·8	206·7	217·5	220·7	214·9	209·3	212·5	223·7	238·8		255·6	273·2	290·6	306·9	320·3	327·7	326·0	318·8	318·5	327·4
316·7	316·0	315·7	315·4	316·9	316·5	317·3	318·6	320·1		321·9	323·8	325·8	328·0	330·2	332·5	335·0	337·4	339·8	342·2
190·9	203·1	215·5	228·0	240·5	252·7	265·1	277·6	289·8		302·0	314·0	325·9	337·6	349·1	0·1	10·8	21·0	30·4	38·0
208·6	209·7	210·8	212·0	213·2	214·4	215·5	216·6	217·7		218·8	219·6	220·4	221·2	221·5	221·9	222·2	222·3	222·3	221·8
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
237·5	244·5	251·8	259·0	266·5	274·1	281·6	289·4	297·1	**1810**	304·8	312·6	320·3	327·9	335·8	343·3	350·7	358·2	5·7	13·0
199·3	205·0	201·5	194·4	194·9	204·5	218·5	234·8	252·3		269·8	286·3	300·4	309·3	309·7	302·8	299·8	307·0	320·4	337·0
357·7	356·3	355·0	353·7	352·8	352·3	352·0	352·1	352·5		353·3	354·4	355·6	357·2	359·0	1·1	3·1	5·4	7·6	10·0
136·8	148·6	160·8	172·7	185·1	197·3	209·7	222·2	235·6		247·4	260·1	272·8	285·0	297·7	310·4	323·0	335·3	347·5	0·3
216·6	219·7	220·7	221·8	223·0	224·3	225·5	226·6	227·7		228·8	229·6	230·6	231·5	232·0	232·5	233·0	233·1	233·1	233·1
137·0	143·2	149·3	155·3	161·3	167·1	173·1	178·8	186·5	**1811**	190·1	195·5	200·6	205·7	210·4	214·8	218·9	222·6	225·8	227·4
187·5	180·5	177·8	186·0	198·4	214·6	231·5	249·0	265·6		280·6	291·2	293·6	287·5	282·5	287·5	299·2	315·2	332·8	351·5
38·1	37·2	36·0	34·8	33·3	32·0	30·7	29·7	28·8		28·3	28·2	28·4	28·9	29·8	30·9	32·2	33·9	35·6	37·7
219·5	230·1	239·4	247·9	255·3	260·1	262·0	260·4	255·6		250·2	247·4	248·8	253·5	260·1	269·1	278·0	288·1	298·7	309·9
228·6	229·6	230·6	231·6	232·8	234·0	235·1	236·1	237·3		238·5	239·5	240·5	241·6	242·2	242·9	243·6	243·9	244·1	244·3
																Mr 6	Mr 16	Mr 26	Ap 5
258·6	265·2	272·1	279·1	286·3	293·6	301·9	308·4	315·7	**1812**	323·1	330·5	337·8	345·2	352·5	359·9	6·8	13·8	21·0	27·8
161·2	166·8	178·7	194·4	211·2	228·6	245·4	260·7	272·4		277·2	273·1	266·3	268·4	278·6	293·8	311·1	329·2	347·7	5·1
73·6	73·7	73·8	73·3	72·6	71·6	70·3	68·7	67·7		66·4	65·1	64·1	63·5	63·2	63·1	63·5	64·0	65·0	66·1
172·2	184·7	197·3	209·8	222·3	234·8	247·5	260·1	272·7		285·2	297·8	310·3	322·6	334·8	347·2	359·3	10·4	23·0	34·9
238·7	239·6	240·5	241·4	242·5	243·6	244·8	246·0	247·2		248·3	249·4	250·4	251·5	252·4	253·3	254·1	254·5	254·9	255·3
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
149·4	155·7	161·8	168·3	174·4	180·3	187·0	193·1	199·3	**1813**	205·5	211·8	218·0	224·1	230·2	236·2	242·3	248·0	253·8	259·4
159·0	173·2	190·7	208·0	225·3	241·0	253·8	260·7	258·7		251·2	250·7	258·9	273·0	289·7	307·5	325·8	343·4	359·2	11·2
103·5	104·7	105·6	106·4	106·7	106·9	106·6	105·9	105·1		103·9	102·6	101·3	99·9	98·7	97·6	96·7	96·4	96·0	96·3
127·4	137·2	148·5	158·6	171·0	181·6	193·5	205·5	217·7		229·9	242·2	254·7	267·1	279·4	292·0	304·3	316·8	329·3	341·6
249·1	249·8	250·6	251·3	252·4	253·4	254·5	255·7	256·9		258·1	259·2	260·4	261·5	262·4	263·3	264·3	264·9	265·5	266·1
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
291·1	295·6	300·7	306·0	311·8	317·9	324·1	330·6	336·9	**1814**	343·4	350·0	356·6	3·2	9·8	16·5	23·0	29·7	36·2	42·7
169·8	186·5	204·8	221·2	235·0	244·0	244·4	237·1	233·7		239·9	252·7	268·4	286·0	303·9	321·7	337·7	350·7	356·5	353·6
130·0	131·7	133·4	134·8	136·2	137·1	137·8	138·3	138·3		138·1	137·6	136·6	135·5	134·2	132·9	131·5	130·3	129·2	128·
209·0	220·8	232·8	244·8	256·5	267·9	279·4	290·5	301·1		311·2	320·0	327·7	333·6	333·6	336·0	331·8	326·0	322·0	320·8
259·7	260·2	260·8	261·4	262·4	263·4	264·4	265·6	266·8		267·9	269·0	270·3	271·4	272·5	273·5	274·6	275·4	276·1	276·8

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·6	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle.
Venus, A.D. 1765—A.D. 1999;

Day of I. S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date ..		Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1814	Mars ...	46·3	52·7	59·3	65·7	72·2	78·6	85·0	91·4	97·8	104·2	110·6	116·8	123·2	129·6	136·0	142·3	148·7	155·2
	Merc.	349·3	346·3	353·1	6·7	23·8	42·3	61·4	80·0	97·3	111·8	120·5	119·5	112·0	110·6	119·1	132·5	149·1	166·5
	Jup. ...	128·0	127·7	127·7	127·8	128·5	129·3	130·4	131·8	133·4	135·1	137·1	139·1	141·2	143·2	145·3	147·7	149·8	152·0
	Ven. ...	323·9	328·3	335·0	343·3	352·7	2·5	12·1	23·7	34·9	46·3	57·9	69·5	81·3	92·9	104·9	117·1	129 3	141·6
	Sat. ...	277·1	277·4	277·6	277·8	277·5	277·2	276·9	276·2	275·5	274·8	274·1	273·3	272·5	271·9	271·4	270·8	270·7	270·7
1815	Mars ...	285·8	292·7	299·4	306·4	313·1	319·7	326·2	332·5	338·5	344·4	349·6	354·2	358·2	1·5	3·6	4·4	3·9	2·0
	Merc. ...	332·8	345·0	1·3	19·6	38·5	57·5	75·1	90·4	100·9	102·2	95·4	92·1	98·6	111·5	127·7	145·2	163·2	180·6
	Jup. ...	161·4	160·3	159·4	158·5	158·1	158·1	158·1	158·8	159·6	160·6	161·9	163·5	165·3	167·1	169·1	171·2	173·2	175·3
	Ven. ...	25·5	37·6	49·6	61·6	73·7	85 3	96·8	108·4	119·5	130·5	141·2	151·1	160·8	169·4	176·7	182·3	185·0	184·2
	Sat. ...	288·1	288·4	288·8	289·3	289·1	289·0	288·9	288·3	287·7	287·2	286·4	285·6	284·9	284·2	283·5	282·8	282·5	282·3
Eng. date ...		Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1816	Mars ...	61·0	67·2	73·1	79·2	85·3	91·4	97·6	103·8	110·0	116·3	122·4	128·8	135·1	141·5	147·9	154·2	160·8	167·3
	Merc. ..	339·0	356·8	15·5	34·5	52·6	68·7	80·3	84·3	78·5	73·3	78·4	90·4	106·2	123·8	141·8	159·8	176·2	189·7
	Jup. ..	195·5	193·2	193·0	191·6	190·4	189·3	188·6	188·2	188·2	188·4	188·8	189·7	190·0	191·9	194·2	195·2	197·1	199·1
	Ven. ...	330·4	342·6	354·7	7·1	19·3	31·5	43·8	56·0	68·1	80·6	92·6	105·0	116·9	129·5	141·7	154·2	166·7	178·9
	Sat. ...	298·9	299·5	300·1	300·7	300·8	300·9	301·0	300·6	300·2	299·8	299·1	298·4	297·6	296·8	296·0	295·3	294·9	294·4
Eng. date ...		Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1817	Mars ...	305·2	312·7	320·3	327·7	335·3	342·7	350·1	357·2	4·2	11·2	17·8	24·3	30·6	36·5	42·2	47·3	52·0	55·2
	Merc. ...	352·9	11·6	29·9	46·6	59·6	65·2	61·1	54·8	57·9	68·7	84·4	101·8	120·1	138·3	155·0	170·2	180·2	181·6
	Jup. ..	229·2	228·5	227·5	226·5	225·2	223·8	222·5	221·3	220·3	219·5	219·0	218·8	219·1	219·5	220·4	221·5	222·9	224·3
	Ven. ...	41·6	46·4	48·3	46·6	41·7	36·0	30·5	33·0	36·6	43·1	50·9	59·9	69·8	80·2	90·8	102·1	113·5	125·4
	Sat. ...	309·8	310·6	311·3	312·2	312·6	312·9	313·2	313·0	312·8	312·6	312·0	311·4	310·7	309·9	309·1	308·2	307·6	307·0
1818	Mars ...	77·1	82·3	87·7	93·4	99·1	104·7	110·6	116·6	122·5	128·7	134·8	141·0	147·4	153·7	160·0	166·6	173·1	179·7
	Merc. ...	7·3	24·3	38·1	45·7	43·3	36·1	37·3	47·0	62·0	79·6	98·1	116·4	134·3	149·9	161·6	165·7	160·7	154·4
	Jup. ...	261·2	261·5	261·7	261·4	260·8	260·0	258·8	257·6	256·3	204·9	253·7	252·6	251·8	251·1	251·0	251·2	251·5	252·2
	Ven. ...	7·6	19·8	32·1	44·5	56·7	68·9	81·0	92·9	105·1	117·0	128·9	140·9	152·6	164·2	175·9	187·3	198 5	209·4
	Sat ...	320·8	321·8	322·7	323·7	324·3	324·9	325·4	325·5	325·5	325·5	325·0	324·5	324·0	323·2	322·4	321·7	320·9	320·2
1819	Mars ...	323·0	330·8	338·6	346·3	353·8	1·3	8·9	16·2	23·4	30·4	37·4	44·2	51·0	57·5	63·6	69·7	75·6	81·4
	Merc. ...	16·6	25·6	25·0	18·0	16·6	25·3	39·9	57·1	75·6	94·3	112·4	128·9	142·2	148·4	145·8	138·4	136·6	148·3
	Jup. ...	291·0	292·6	293·7	294·7	295·4	295·5	295·6	295·4	294·4	293·5	292·2	290·8	289·4	288 2	287·1	286·2	285·4	285·0
	Ven. ...	316·1	327·4	339·0	350·8	2·8	14·7	26·5	38·4	50·4	62·6	74·5	86·7	98·7	111·1	123·3	135·6	148·1	160·4
	Sat. ...	332·1	333·2	334·3	335·4	336·2	337·0	337·8	338·0	338·3	338·5	338·3	338·1	337·7	337·0	336·7	335·6	334·8	334·0
Eng. date ...		Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1820	Mars ...	95·9	99·6	104·0	108·8	113·8	119·0	124·6	130·0	135 9	141·8	147·7	154·0	160·2	166·5	172·9	179·4	186·3	192·9
	Merc. ...	7·0	0·5	357·0	3·3	17·3	34·3	52·7	71·7	90·4	107·5	121·8	130·5	129·7	122·6	120·9	128·9	142 2	158·6
	Jup ...	319·6	321·6	323·6	325·6	327·1	328·5	329·7	330·5	330·9	331·1	331·0	330·5	329·7	328·7	327·4	326·0	324·6	323·2
	Ven. ..	41·2	52·5	63·6	74·1	84·0	93·5	101·7	108·5	113·0	114·5	112·3	106·3	101·1	98 2	98·8	103·2	109·6	117·7
	Sat. ...	343·4	344·6	345 8	347·1	348·1	349·0	350·0	350·6	351·2	351·6	351·6	351·6	351·5	351·0	350·5	349·8	349·1	348·3
Eng. date ...		Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1821	Mars ...	339·9	347·7	355·3	3·0	10·6	18·0	25·3	32·6	39·8	46·9	53·6	60·4	67·1	73·7	80·1	86·3	92·6	98·6
	Merc. ...	338·3	343·0	355·5	11·8	29·9	48·9	67·8	86·1	100·8	111·1	113·0	106·2	102·8	108·6	121·2	137·6	155·2	172·7
	Jup. ...	347·5	349·9	352·2	354·5	356·6	358·8	0·9	2·6	4·1	5·5	6·5	7·3	7·5	7·7	7·3	6·8	5·8	4·6
	Ven. ...	348·2	1·2	13·7	25·8	38·5	50·6	62·9	75·2	87·3	99·5	111·8	124·0	136·1	148·2	160·8	173·0	185·1	197 2
	Sat. ...	355·1	356·4	357·7	359·0	0·1	1·3	2·4	3·1	3·9	4·7	4·9	5·2	5·4	5·1	4·8	4·4	3·7	3·0
1822	Mars ...	120·3	121·8	124·3	127·4	131·2	135·5	140·4	145·4	150·8	156·4	162·3	168·1	174·4	180·6	187·2	193·7	200·4	207·3
	Merc. ...	333·8	349·2	7·0	25·6	44·6	63·2	78·8	91·1	94·9	89·5	84·2	88·9	100·6	116·2	133·5	151·5	169·3	185·5
	Jup. ...	14·8	17·2	19·6	22·0	24·4	26·8	29·1	31·4	33·6	35·4	37·5	39·1	40·6	41·8	42·7	43·5	43·8	43·7
	Ven. ...	322·5	327·5	334·6	343·1	352·7	2·7	12·5	24·1	35·3	46·8	58·4	70·0	81·8	93·5	105·5	117·7	129·9	142·7
	Sat. ...	7·0	8·3	9·6	10·9	12·1	13·4	14·7	15·6	16·6	17·6	18·1	18·7	19·2	19·2	19·1	19·0	18·5	18·0
1823	Mars ...	355·9	3·3	11·0	18·4	25·7	33·0	40·3	47·3	54·3	61·7	68·1	74·8	81·4	87·9	94·3	100·6	106·8	113·0
	Merc. ...	344·7	3·0	22·0	40·4	57·1	70·1	76·1	72·3	65·9	68·2	79·1	94·5	111·9	130·1	148·1	165·1	179·6	189·4
	Jup. ..	42·7	44·9	47·0	49·2	51·4	53·9	56·2	58·5	60·9	63·2	65·5	67·6	69·6	71·3	73·0	74·7	76·1	77·1
	Ven. .	26·1	38·2	50·2	62·3	74·2	85·8	97 3	108·8	119·9	130·8	141·4	151·2	160·6	168·9	175·8	180·7	182·8	180·8
	Sat. ...	19·2	20·5	21·8	23·2	24·5	25·8	27·2	28·3	29·5	30·6	31·3	32·1	32·8	33·1	33·4	33·6	33·3	32·9
Eng. date ...		Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1824	Mars ...	156·0	153·9	153·1	153·6	155 0	157·6	160·8	164·9	169·2	174·1	179·4	185·0	190·8	197·1	203·3	209·8	216·6	223·4
	Merc. ...	359·3	17·6	34·7	48·8	56·5	54·8	47·6	47·7	57·7	73·6	89 8	108·2	126·5	141·2	159·6	171·2	175·4	170·0
	Jup ...	70·9	72·4	74·0	75·8	77·8	79·9	82·0	84·2	86·6	88·9	91·1	93·5	95·7	98·0	100·0	102·1	103·9	105·7
	Ven. ...	331·0	343·2	355·2	7·7	19·9	32·1	44·4	56·6	68·7	81·3	93·3	105·6	117·9	130·3	142·2	154·8	167·3	179·5
	Sat. ...	31·6	32·9	34·2	35·5	36·9	38·2	39·6	40·8	42·1	43·3	44·4	45·4	46·5	46·9	47·3	47·8	47·8	47·7
Eng. date ...		Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1825	Mars ...	11·1	18·5	25·7	32·9	40·1	47·2	54 1	60·9	67·9	74·5	81·2	87·9	94 4	100·9	107·2	113·5	119·9	125·1
	Merc. ...	12·3	27·3	37·4	36 4	29·2	27·6	36·3	50·8	67·8	85·7	104·4	122·5	138·9	152·1	157·9	155·8	148·2	149·1
	Jup. ...	100·7	101·3	102·1	103·1	104·5	105·9	107·8	109·8	111·7	113·8	116·0	118·1	120·3	122·6	124·7	127·0	129·2	131 2
	Ven. ...	40·7	44·9	45·9	43·3	38·0	32·6	28·0	31·4	35·7	42·6	50·7	59·8	69 9	80·4	91·2	102·5	114 0	125·9
	Sat. ...	44·4	45·7	47·0	48·2	49·5	50·8	52·1	53·4	54·7	56·1	57·3	58·4	59·6	60·4	61·1	61·9	62·1	62·4

Mesh.	Vrish.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrach.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

	180	190	200	210	220	230	240	250	260
	O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27
	161·6	168·0	174·6	180·8	187·5	194·0	200·6	207·1	213·8
	184·3	201·0	215·8	226·6	229·6	223·5	218·0	221·8	232·8
	154·2	156·3	158·4	160·4	162·1	163·8	165·2	166·5	167·5
	158·9	166·2	179·4	191·1	203·6	216·2	228·8	241·4	254·2
	270·6	271·0	271·4	271·9	272·8	273·7	274·5	275·4	276·3
	0·1	357·2	355·3	354·5	354·8	356·2	358·4	1·5	5·1
	196·2	208·6	214·0	210·5	203·4	204·0	213·3	227·6	243·7
	177·5	179·9	181·9	184·2	186·3	188·4	190·3	192·0	193·7
	179·9	173·9	170·0	170·0	173·4	179·6	187·6	197·0	206·9
	282·0	282·2	282·4	282·8	283·5	284·9	285·0	286·0	287·1
	O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26
	173·7	180·4	187·1	193·6	200·5	207·3	214·1	221·0	228·0
	197·2	196·4	188·9	187·1	194·8	207·7	223·7	241·0	258·5
	201·2	203·4	205·4	207·6	209·8	212·2	214·2	216·4	218·6
	191·5	203·7	216·2	228·6	241·1	253·2	265·7	278·1	290·3
	293·9	293·9	294·0	294·0	294·5	295·1	295·7	296·7	297·7
	O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27
	59·5	62·0	63·4	63·7	62·6	60·2	57·4	54·1	51·3
	174·8	170·6	176·2	188·0	203·4	220·4	237·8	254·8	270·1
	226·1	228·0	230·0	232·1	234·4	236·5	238·9	241·1	243·4
	137·3	149·1	161·3	173·3	185·7	197·9	210·3	222·8	236·0
	306·4	306·2	306·0	305·8	306·2	306·5	306·9	307·8	308·6
	186·3	193·1	200·0	206·8	213·9	221·0	228·0	235·3	242·6
	157·6	168·4	183·2	199·9	217·3	234·4	250·3	263·0	270·5
	253·3	254·6	256·3	258·0	260·0	262·0	264·0	266·3	268·5
	219·9	230·0	239·1	247·2	254·3	257·9	259·0	256·4	251·9
	319·4	319·1	318·7	318·2	318·4	318·5	318·7	319·3	319·9
	86·3	91·1	95·5	99·2	102·4	104·7	106·0	106·1	105·0
	162·9	179·3	196·8	213·9	230·3	244·3	253·1	253·4	246·1
	284·9	285·3	285·9	286·8	288·2	289·5	291·3	293·1	295·2
	172·9	185·4	198·0	210·4	222·9	235·4	248·1	260·7	273·4
	333·2	332·6	332·1	331·5	331·4	331·3	331·2	331·7	332·2
	O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26
	199·8	206·7	213·6	220·9	228·0	235·2	242·6	251·1	257·6
	176·0	193·5	210·3	224·9	235·6	239·2	232·8	227·1	230·8
	322·2	321·3	320·8	320·4	320·6	321·0	321·9	323·0	324·4
	127·3	137·3	148·6	158·7	171·2	182·0	193·9	206·0	218·2
	347·5	346·7	346·0	345·2	344·8	344·5	344·2	344·4	344·7
	O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27
	104·3	109·9	115·1	120·1	124·8	129·0	132·7	135·7	138·0
	190·1	205·5	218·0	224·0	219·1	211·2	213·2	222·7	237·0
	3·4	2·0	0·7	359·2	358·2	357·6	357·0	357·0	357·2
	209·4	221·2	233·2	245·2	256·9	268·3	279·6	290·6	301·1
	2·3	1·5	0·7	359·8	359·2	358·6	358·1	358·0	358·0
	214·2	221·2	228·3	235·6	243·1	250·5	258·1	265·7	273·3
	199·0	206·6	205·6	198·0	196·2	203·9	217·0	233·0	250·2
	43·3	42·6	41·6	40·4	39·0	37·3	36·4	35·0	34·3
	154·5	166·8	179·8	191·7	204·2	216·8	229·4	242·0	254·8
	17·3	16·5	15·7	14·8	14·1	13·4	12·7	12·3	12·0
	119·0	124·9	130·6	136·2	141·6	146·8	151·7	156·4	160·6
	191·0	184·0	179·9	185·3	197·3	212·6	229·3	246·9	264·1
	77·9	78·2	78·4	78·1	77·6	76·7	75·6	74·2	73·0
	176·1	170·5	167·4	168·3	172·4	179·1	187·4	196·9	207·0
	32·5	31·8	31·1	30·3	29·4	28·7	27·8	27·2	26·7
	O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26
	230·4	237·5	244·7	252·1	259·5	267·2	274·8	282·4	290·2
	163·9	167·1	177·6	192·4	209·1	226·4	243·6	259·5	272·4
	107·2	108·7	109·7	110·5	111·0	111·2	110·9	110·5	109·8
	192·1	204·4	216·8	229·2	241·6	253·8	266·3	278·6	290·9
	47·6	47·0	46·4	45·9	45·0	44·2	43·3	42·6	41·9
	O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27
	132·3	138·3	144·3	150·3	156·0	161·8	167·3	172·8	178·8
	158·0	172·2	188·6	206·0	223·3	239·7	253·4	262·4	262·4
	133·2	135·0	136·8	138·3	139·7	140·9	141·7	142·2	142·4
	137·8	149·6	161·8	173·9	186·3	198·5	210·9	223·4	236·4
	62·5	62·2	61·9	61·4	60·7	60·0	59·2	58·4	57·6

	Mag.	P. Phal.	U. Phal.	Hasta	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Srav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati
	133·3	146·7	160·0	173·3	186·7	200·0	213·3	223·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

	270	280	290	300	310	320	330	340	350	360
	Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
1815	220·4	227·1	234·0	240·7	247·5	254·3	261·2	268·4	275·1	282·1
	247·8	265·1	282·9	300·2	316·6	330·2	338·1	336·6	329·1	328·7
	168·1	168·5	168·7	168·6	167·9	167·0	165·9	164·7	163·4	162·1
	266·8	279·4	291·9	304·7	317·1	329·6	342·0	354·6	6·9	19·1
	277·2	278·4	279·6	280·7	281·8	283·0	284·1	285·2	286·1	287·1
							Mr 6	Mr 16	Mr 26	Ap 5
1816	9·2	13·6	18·6	23·9	29·2	34·6	40·3	46·2	52·0	57
	261·6	279·2	295·8	309·9	319·4	319·8	313·2	310·1	317·0	330·4
	195·3	196·3	197·3	198·1	198·7	198·7	198·5	198·1	197·1	196·1
	217·6	228·7	240·2	251·8	263·5	275·6	287·8	299·9	311·7	324·0
	288·1	289·3	290·5	291·8	293·0	294·2	295·3	296·3	297·4	298·4
	Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
1817	235·2	242·2	249·4	256·7	264·0	271·2	278·8	286·2	293·7	301·3
	275·2	290·0	300·7	303·3	296·9	292·2	297·3	309·0	325·3	343·0
	220·6	222·3	224·1	225·6	226·1	228·0	228·8	229·3	229·5	229·5
	302·5	314·5	326·3	338·0	349·4	0·3	10·9	20·9	30·1	37·6
	298·6	299·8	301·0	302·1	303·3	304·5	305·8	307·0	308·1	309·3
	Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
1818	49·5	48·7	49·5	51·1	53·7	56·8	60·6	64·8	69·5	74·4
	282·1	286·5	282·1	275·8	278·1	288·4	303·5	320·9	339·3	357·8
	245·5	247·8	249·9	251·9	253·9	255·8	257·4	258·8	259·9	261·8
	248·0	260·7	273·4	285·6	298·4	311·0	323·6	335·9	348·4	0·9
	309·5	310·6	311·7	312·8	314·0	315·3	316·5	317·8	319·0	320·2
1819	250·0	257·3	264·9	272·5	280·1	287·8	295·6	303·4	311·2	318·9
	267·9	260·5	260·0	268·4	282·4	299·2	317·3	335·6	353·4	9·2
	270·9	273·1	275·4	277·8	280·1	282·5	284·6	286·6	288·5	290·4
	246·8	245·0	247·4	252·6	259·6	268·5	277·9	288·3	299·0	310·1
	320·6	321·7	322·8	323·8	325·0	326·2	327·5	328·8	330·1	331·3
							Mr 6	Mr 16	Mr 26	Ap 5
1820	102·3	98·8	95·1	91·6	88·9	87·7	87·6	88·8	91·1	94·0
	243·0	249·1	262·0	278·0	295·7	313·8	331·6	347·9	1·0	7·5
	297·4	299·6	301·9	304·2	306·7	309·1	311·3	313·7	316·1	318·5
	285·8	298·4	310·9	323·2	335·4	347·8	359·8	11·1	23·5	35·8
	332·7	333·6	334·5	335·3	336·5	337·7	338·9	340·2	341·5	342·8
	Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
1821	265·2	273·0	280·7	288·4	296·3	304·1	312·1	320·0	327·8	335·8
	242·0	257·3	274·4	292·2	309·9	326·7	340·1	348·4	347·2	340·0
	326·0	327·7	329·7	331·8	334·0	336·4	338·7	341·1	343·6	346·0
	230·5	242·7	255·2	267·6	280·0	292·6	304·9	317·4	329·9	342·2
	345·0	345·7	346·4	347·2	348·3	349·4	350·5	351·8	353·1	354·4
	Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
1822	139·2	139·6	138·2	135·5	132·2	128·2	124·8	121·9	120·1	119·9
	253·4	271·0	288·8	305·5	320·0	329·3	330·1	323·0	320·2	327·1
	357·8	358·7	359·9	1·4	3·2	5·0	7·0	9·1	11·5	13·8
	311·0	319·5	326·9	332·3	334·5	333·0	328·3	322·8	319·6	319·5
	358·0	358·5	359·1	359·6	0·6	1·5	2·5	3·7	4·9	6·2
1823	281·2	288·9	296·9	304·8	312·6	320·5	328·4	336·3	344·0	351·7
	287·7	284·5	299·5	310·3	313·1	307·1	302·0	307·3	319·1	335·2
	33·5	33·2	33·2	33·5	34·3	35·3	36·4	37·9	39·6	41·4
	267·5	280·0	292·5	305·3	317·7	330·2	342·7	355·2	7·5	19·7
	11·7	12·0	12·2	12·5	13·4	14·2	14·9	15·1	17·2	18·4
1824	164·2	167·6	170·0	171·6	171·7	170·8	Mr 6 168·5	Mr 16 165·1	Mr 26 161·2	Ap 5 157·4
	279·4	291·4	296·3	292·0	285·5	287·6	298·4	313·4	330·9	349·4
	71·8	70·5	69·5	68·6	68·1	68·1	68·1	68·5	69·3	70·1
	217·8	229·0	240·5	252·2	264·0	276·1	288·3	300·4	312·5	324·6
	26·2	26·1	26·1	26·1	26·7	27·3	27·9	28·9	29·9	30·9
	Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
1825	298·0	305·8	313·6	321·4	329·2	336·8	344·6	352·1	359·7	7·1
	279·4	277·3	270·1	269·2	278·3	292·3	309·0	327·3	345·1	3·7
	108·8	107·7	106·4	105·0	103·9	102·7	101·7	101·1	100·8	100·8
	303·0	314·9	326·7	338·4	349·7	0·5	10·9	20·8	29·8	37·2
	41·1	40·9	40·6	40·3	40·6	40·9	41·2	42·0	42·8	43·7
	Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
1826	183·5	188·5	193·1	197·5	201·4	204·6	207·4	209·2	210·2	209·9
	255·2	252·0	258·6	271·5	287·5	305·3	323·5	341·5	358·0	11·6
	142·3	141·9	141·2	140·1	139·0	137·7	136·5	135·1	134·0	133·1
	248·6	261·3	274·0	286·3	299·0	311·6	324·2	336·6	349·0	1·5
	56·7	56·2	55·6	55·1	55·1	55·1	55·1	55·7	56·4	56·9

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle.
Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date		Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1826	Mars ...	209·0	206·9	204·1	200·9	197·7	195·8	195·1	195·9	197·5	200·4	203·8	208·1	212·9	218·1	223·9	229·8	236·3	242·9
	Merc. ...	15·7	18·0	11·3	7·7	14·7	27·9	45·3	63·1	82·1	101·2	117·7	131·8	140·4	139·9	133·0	130·7	138·7	151·9
	Jup. ...	132·6	132·1	132·0	132·0	132·4	133·2	134·3	135·5	137·0	138·6	140·4	142·4	144·4	146·5	148·6	150·8	153·0	155·2
	Ven. ...	8·2	20·4	32·7	45·1	57·3	69·5	81·6	93·5	105·6	117·5	129·4	141·4	153·1	164·6	176·4	187·6	198·8	209·7
	Sat. ...	57·4	58·5	59·7	60·8	62·1	63·4	64·7	66·0	67·4	68·8	70·1	71·3	72·5	73·5	74·5	75·5	76·0	76·4
1827	Mars ...	25·9	32·9	39·8	46·9	53·6	60·5	67·3	73·9	80·5	87·1	93·8	100·2	106·6	113·1	119·5	125·9	132·2	138·5
	Merc. ...	354·3	348·8	353·3	5·9	22·0	40·2	59·3	78·0	95·7	110·9	121·4	123·3	116·8	112·9	118·6	131·3	147·0	164·3
	Jup. ...	166·1	164·9	163·8	162·9	162·3	162·2	162·2	162·4	163·4	164·4	165·6	167·1	168·8	170·6	172·5	174·6	176·6	178·8
	Ven. ...	316·4	327·8	339·5	351·3	3·3	15·2	27·0	39·0	51·0	63·2	75·2	87·3	99·3	111·7	123·9	136·2	148·7	161·0
	Sat. ...	70·7	71·6	72·5	73·5	74·7	75·9	77·1	78·5	79·9	81·2	82·5	83·8	85·2	86·3	87·4	88·5	89·3	90·1
Eng. date		Ap 10	Ap 20	Ap 30	My 10	My 20	My 30	Je 9	Je 19	Je 29	Jl 9	Jl 19	Jl 29	Au 8	Au 18	Au 28	S 7	S 17	S 27
1828	Mars ...	250·8	254·8	258·4	261·2	263·1	264·1	264·0	262·5	260·7	257·9	255·5	253·9	254·2	255·5	258·0	261·3	265·7	270·5
	Merc. ...	332·5	343·8	359·5	17·4	36·3	55·2	73·6	89·7	101·6	105·6	100·2	94·9	99·1	110·6	125·9	143·3	161·0	178·6
	Jup. ...	200·1	198·9	198·2	198·2	198·1	194·1	193·1	192·6	192·5	192·5	192·8	193·6	194·5	195·8	197·3	198·9	200·6	202·6
	Ven. ...	41·6	52·8	63·8	74·3	84·6	93·8	101·2	107·6	111·4	112·1	108·9	102·5	97·9	95·9	97·3	102·3	109·2	117·4
	Sat. ...	84·2	85·0	85·7	86·3	87·4	88·5	89·7	90·8	92·3	93·5	94·8	96·1	97·5	98·8	100·1	101·3	102·2	103·2
Eng. date		Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1829	Mars ...	40·5	47·1	53·7	60·3	67·0	73·5	80·0	86·6	93·0	99·4	105·8	112·2	118·7	125·0	131·4	137·8	144·1	150·5
	Merc. ...	337·5	354·9	13·4	32·3	50·8	67·5	80·6	87·0	83·3	76·7	78·9	89·5	104·0	121·7	139·8	157·8	174·1	189·1
	Jup. ...	233·7	232·5	232·0	231·3	230·0	228·7	227·3	226·2	225·0	224·2	223·5	223·2	223·2	223·6	224·4	225·4	226·5	227·9
	Ven. ...	349·1	1·9	14·3	26·6	39·1	51·2	63·5	75·9	87·9	100·1	112·5	124·6	136·7	148·8	161·3	173·5	185·6	197·7
	Sat. ...	98·0	98·4	98·8	99·3	100·3	101·2	102·0	103·2	104·4	105·6	107·0	108·3	109·6	110·9	112·1	113·4	114·5	115·6
1830	Mars ...	277·3	183·8	290·1	296·5	302·8	308·5	314·0	319·4	324·3	328·6	332·4	334·9	336·3	336·2	335·0	332·8	330·2	328·4
	Merc. ...	350·7	9·6	28·0	45·2	59·4	67·2	65·9	58·7	58·8	69·4	82·7	99·8	118·0	136·4	153·5	169·1	180·7	184·5
	Jup. ...	265·3	265·9	266·9	268·0	269·7	265·0	264·0	262·8	261·5	260·2	258·9	257·7	256·8	256·0	255·7	255·6	255·8	256·5
	Ven. ...	321·1	326·7	334·2	342·9	352·6	2·9	13·0	24·4	35·6	47·2	58·9	70·5	82·3	94·0	106·1	118·3	130·5	142·8
	Sat. ...	111·8	112·0	112·1	112·3	113·1	113·8	114·4	115·5	116·6	117·7	119·0	120·3	121·4	122·8	124·1	125·4	126·6	127·8
1831	Mars ...	55·3	61·4	67·7	73·9	80·0	86·4	92·7	98·9	105·2	111·4	117·9	124·1	130·4	136·8	143·1	149·4	155·9	162·5
	Merc. ...	5·6	22·8	37·7	47·1	47·7	40·6	38·7	46·4	60·7	77·6	96·1	114·4	132·4	148·6	161·7	168·0	165·2	157·9
	Jup. ...	295·0	296·6	297·9	299·0	300·1	300·3	300·5	300·0	299·5	298·7	297·7	296·4	295·1	293·8	292·6	291·5	290·6	290·0
	Ven. ...	26·7	38·8	50·7	62·7	74·7	86·3	97·7	109·2	120·3	131·1	141·6	151·2	160·4	168·4	174·8	179·0	180·2	177·4
	Sat. ...	125·7	125·6	125·4	125·3	125·8	126·3	126·8	127·7	128·6	129·4	130·6	131·8	133·1	134·4	135·7	136·9	138·1	139·3
1832	Mars ...	297·7	305·1	312·5	320·0	327·2	334·3	341·7	348·5	355·5	2·1	8·4	14·6	20·2	25·8	30·7	34·8	38·4	41·0
	Merc. ...	15·7	26·8	29·1	22·0	18·9	25·2	38·5	55·0	73·3	92·0	110·4	127·5	141·8	149·9	149·7	142·1	140·5	148·0
	Jup. ...	333·3	325·5	327·6	329·5	331·2	332·8	334·0	335·0	335·7	336·1	336·3	335·8	335·2	334·2	333·0	331·7	330·3	328·9
	Ven. ...	331·6	343·5	355·8	8·3	20·5	32·7	45·0	57·2	69·2	81·8	93·9	106·2	118·5	130·7	142·7	155·4	167·9	180·1
	Sat. ...	139·5	139·1	138·7	138·5	138·7	139·0	139·1	139·8	140·6	141·2	142·3	143·3	144·5	145·7	146·9	148·2	149·5	150·8
1833	Mars ...	70·5	76·2	81·9	87·7	93·5	99·4	105·5	111·5	117·6	123·7	129·9	136·2	142·5	148·9	155·2	161·7	168·2	174·8
	Merc. ...	10·4	5·2	359·8	4·2	16·4	32·4	50·6	69·4	88·5	105·3	121·2	131·9	133·4	126·9	122·9	128·7	141·0	156·6
	Jup. ...	351·0	353·4	355·8	358·2	0·4	2·6	4·6	6·5	8·2	9·7	10·9	11·8	12·4	12·7	12·5	12·1	11·5	10·4
	Ven. ...	39·8	43·4	43·5	40·0	34·3	29·2	25·5	29·8	34·8	42·1	50·5	59·8	70·0	80·6	91·6	102·9	114·5	126·4
	Sat. ...	153·1	152·5	152·0	151·4	151·3	151·4	151·3	151·8	152·4	152·5	153·7	154·6	155·8	156·7	157·8	159·0	160·3	161·6
1834	Mars ...	316·2	323·9	331·7	339·2	346·9	354·4	1·9	9·1	16·4	23·5	30·4	37·3	43·7	50·8	56·1	62·1	67·7	72·8
	Merc. ...	341·6	343·3	354·5	6·9	27·7	46·6	65·6	83·6	99·8	111·9	116·2	110·9	105·1	108·6	120·5	135·7	152·8	170·5
	Jup ...	18·8	21·2	23·6	26·0	28·4	30·8	33·1	35·5	37·6	39·7	41·6	43·3	45·0	46·2	47·3	48·1	48·5	48·6
	Ven. ...	5·8	21·1	33·3	45·7	57·9	70·2	82·1	94·1	106·1	118·1	129·9	141·9	153·6	165·1	176·9	188·0	199·1	209·9
	Sat. ...	166·4	165·7	165·0	164·4	164·1	163·8	163·6	163·8	164·0	164·3	165·1	165·9	166·6	167·7	168·8	169·9	171·1	172·3
Eng. date		Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1835	Mars ...	97·7	92·4	97·2	102·5	107·8	113·3	118·9	124·6	130·6	136·6	142·8	148·7	155·0	161·5	167·9	174·5	181·0	187·7
	Merc. ...	333·1	347·6	5·0	23·8	42·8	61·3	78·0	91·3	97·6	94·4	87·6	89·1	99·7	114·5	131·6	149·4	167·1	183·7
	Jup. ...	45·4	45·5	45·6	45·8	54·8	57·4	59·8	62·1	64·4	66·8	69·1	71·2	73·3	75·1	76·9	78·6	80·1	81·2
	Ven. ...	316·7	328·2	340·0	351·9	3·9	15·8	27·6	39·5	51·6	63·8	78·9	87·8	99·9	112·3	124·5	130·9	149·3	161·6
	Sat. ...	179·4	178·6	177·8	177·1	176·6	176·2	175·7	175·7	175·8	175·8	176·3	176·8	177·5	178·4	179·3	180·2	181·4	182·6
1836	Mars ...	333·3	341·2	348·9	356·6	4·1	11·7	19·0	26·4	33·7	40·7	47·7	54·3	61·1	67·8	74·0	80·3	86·3	92·1
	Merc ...	342·6	0·8	19·7	38·4	55·7	70·0	77·9	76·9	69·7	69·3	79·0	92·9	109·8	126·5	146·1	163·2	178·7	190·0
	Jup. ...	75·0	76·3	77·9	79·6	81·5	83·5	85·6	87·8	90·1	92·4	94·6	96·9	99·3	101·4	103·6	105·7	107·7	109·4
	Ven. ...	42·0	53·1	64·0	74·5	83·9	90·1	100·7	106·7	109·8	109·7	105·5	98·8	94·7	93·6	95·9	101·4	108·8	117·1
	Sat. ...	192·0	191·2	190·4	189·6	189·0	188·5	187·8	187·6	187·5	187·2	187·5	187·9	188·0	188·8	189·9	190·7	191·8	192·9
1837	Mars ...	109·7	113·3	115·7	119·8	124·1	128·9	133·8	139·3	144·8	150·4	156·3	162·2	168·7	174·9	181·5	188·1	194·5	201·5
	Merc. ...	357·1	15·4	33·1	48·2	57·9	59·0	52·0	49·5	57·3	71·2	87·9	105·9	124·3	142·1	158·2	171·2	177·6	174·5
	Jup. ...	105·0	105·4	106·0	107·0	108·2	109·6	111·3	113·1	115·0	117·1	119·3	121·4	123·6	125·8	128·0	130·2	132·4	134·5
	Ven. ...	349·9	2·6	14·9	27·3	39·6	51·8	64·1	76·6	88·5	100·6	113·1	125·3	137·1	149·4	161·8	174·0	186·1	198·3
	Sat. ...	204·3	203·5	202·7	202·0	201·3	200·6	199·8	199·5	199·1	198·7	198·8	199·0	199·2	199·8	200·5	201·0	202·0	203·0
1838	Mars ...	348·7	357·4	4·8	12·4	19·9	27·4	34·4	41·7	48·7	55·9	62·6	69·2	76·0	82·4	89·0	95·2	103·8	107·5
	Merc. ...	10·9	26·6	37·6	40·1	33·9	30·0	36·0	49·1	65·5	83·5	102·2	120·5	137·4	151·6	159·8	159·7	152·1	150·2
	Jup. ...	137·1	135·4	136·1	136·1	136·4	137·1	138·0	139·1	140·4	142·1	143·8	145·7	147·7	149·8	151·9	154·1	156·3	158·5
	Ven. ...	319·7	325·9	333·8	342·7	352·6	3·1	13·4	24·8	36·0	47·7	59·4	71·0	82·8	94·6	106·6	118·9	131·1	143·4
	Sat. ...	216·2	215·5	214·8	214·0	213·2	212·4	211·2	211·2	210·7	210·2	210·1	210·0	210·0	210·4	210·9	211·4	212·3	213·2

Mesh.	Vrish.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
249·6	256·5	263·7	270·9	278·3	285·6	293·1	300·7	308·3	**1827**	315·8	323·3	330·9	338·3	345·8	353·2	0·4	7·9	15·0	22·2
168·1	184·7	202·8	219·5	234·3	244·7	247·4	241·4	236·0		240·2	251·5	267·4	283·8	301·9	320·1	336·4	350·4	358·8	357·9
157·4	159·6	161·6	163·6	165·5	167·1	168·6	170·0	171·0		172·0	172·5	172·7	172·6	172·1	171·5	170·4	169·3	168·0	166·8
220·0	230·0	238·8	246·5	253·2	255·9	256·0	252·4	248·2		243·4	242·6	245·9	251·7	259·1	267·9	277·8	288·4	299·2	310·4
76·9	76·8	76·7	76·7	76·0	75·4	74·9	74·0	73·1		72·3	71·6	70·9	70·1	69·8	69·6	69·3	69·7	70·0	70·4
																Mr. 6	Mr 16	Mr 26	Ap 5
144·7	150·9	157·1	163·2	169·4	175·5	181·6	187·7	193·7	**1828**	199·8	205·6	211·4	217·2	222·9	228·4	233·9	239·0	243·9	248·5
182·1	199·2	214·6	226·7	231·9	228·2	221·1	222·1	232·0		246·3	263·9	280·7	298·3	315·2	329·6	339·3	340·4	333·6	330·6
181·0	183·2	185·3	187·5	189·7	191·8	193·7	195·6	197·3		198·9	200·4	201·3	202·2	202·7	202·9	202·8	202·5	201·8	200·8
173·5	186·0	198·7	211·0	223·5	236·0	248·7	261·4	274·0		286·4	299·0	311·5	323·8	336·0	348·4	0·3	11·8	24·1	35·8
90·8	91·0	91·1	91·3	91·0	90·6	90·2	89·4	88·6		87·9	87·1	86·3	85·4	84·9	84·5	83·9	83·9	83·9	84·0
O 7	O 17	O 27	N 6	N 16	N 26	D 6	D 16	D 26		Ja 5	Ja 15	Ja 25	F 4	F 14	F 24	Mr 6	Mr 16	Mr 26	Ap 5
275·9	281·7	287·8	294·4	300·9	307·7	314·3	321·1	328·2	**1829**	335·0	342·1	349·1	356·0	2·9	9·8	16·5	23·4	30·1	37·0
194·9	208·2	215·9	214·3	206·9	204·7	212·9	226·2	242·2		259·5	277·0	294·0	309·3	320·2	323·3	317·4	312·4	316·7	329·0
204·7	206·7	208·8	211·1	213·3	215·5	217·7	219·9	222·0		224·1	226·0	227·7	229·3	230·8	232·0	232·9	233·6	233·9	233·9
127·3	137·4	148·6	159·0	171·3	182·4	194·3	206·5	218·7		231·0	243·2	255·7	268·2	280·6	293·2	305·5	318·0	330·5	342·8
104·1	104·5	105·0	105·4	105·3	105·2	105·1	104·5	103·9		103·2	102·3	101·5	100·6	100·0	99·3	98·6	98·4	98·1	97·9
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
156·8	163·3	169·6	174·0	182·5	188·9	195·2	201·7	208·2	**1830**	214·7	221·3	227·8	234·3	240·9	247·5	254·1	260·6	267·2	273·8
198·7	200·0	193·1	189·0	194·6	206·4	221·5	238·8	256·2		273·4	288·9	301·0	306·1	301·5	295·0	297·6	308·2	323·4	340·9
229·6	231·4	233·4	235·5	237·6	239·9	242·1	244·3	246·7		248·9	251·1	253·3	255·3	257·3	259·2	261·0	262·6	263·9	264·8
209·9	221·7	233·6	245·6	257·2	268·7	279·9	290·8	301·0		310·8	319·1	326·1	330·9	332·4	330·0	324·8	319·6	317·2	318·1
116·6	117·4	118·1	118·8	118·9	119·1	119·3	118·1	118·4		118·0	117·3	116·6	115·8	115·0	114·2	113·3	112·8	112·4	111·8
327·1	327·4	328·8	331·1	334·6	338·3	342·7	347·6	352·6	**1831**	358·0	3·7	9·5	15·2	26·3	27·2	33·4	39·4	45·7	51·9
179·3	173·2	176·3	177·0	201·6	218·4	235·6	252·8	268·7		281·8	288·9	286·7	279·4	279·0	287·6	301·8	318·9	337·2	355·7
257·4	258·7	260·3	261·9	263·6	265·6	267·7	269·9	272·0		274·4	276·7	279·1	281·4	283·8	286·0	288·2	290·3	292·3	294·3
155·1	167·4	180·2	192·3	204·8	217·4	230·0	242·6	255·4		268·1	280·6	293·1	305·9	318·3	330·8	343·3	355·8	8·1	20·3
128·9	129·8	130·6	131·5	132·0	132·4	132·8	132·7	132·5		132·3	131·6	130·9	130·3	129·5	128·7	127·9	127·3	126·6	126·0
																Mr 6	Mr 16	Mr 26	Ap 5
168·9	175·5	182·1	188·7	195·3	202·1	208·7	215·6	222·4	**1832**	229·3	236·3	243·3	250·4	257·5	264·7	272·0	279·2	286·6	293·9
158·2	167·2	181·7	197·9	215·2	232·4	248·7	262·6	271·5		271·6	264·5	261·6	267·8	281·1	297·2	315·3	333·6	351·7	8·2
289·8	290·0	290·5	291·3	292·5	293·7	295·3	297·0	299·6		301·2	303·4	305·8	308·1	310·4	312·9	315·3	317·7	320·1	322·4
172·3	167·0	164·8	166·5	171·3	178·5	187·1	196·8	207·1		218·0	229·4	240·8	252·7	264·5	276·6	288·8	300·9	312·9	325·2
140·6	141·6	142·6	143·6	144·6	145·0	145·5	145·6	145·7		145·7	145·3	144·9	144·4	143·6	142·8	142·1	141·3	40·6	139·8
																Mr 7	Mr 17	Mr 27	Ap 6
42·5	42·6	41·6	39·8	36·8	34·1	31·6	30·3	30·2	**1833**	31·1	33·1	35·7	39·2	43·1	47·4	52·1	57·1	62·3	67·7
161·3	177·4	194·6	212·0	228·5	243·2	253·9	256·4	250·3		245·3	249·5	260·8	276·2	293·4	311·6	329·5	346·4	0·6	9·4
327·8	327·0	326·2	325·8	325·6	326·0	326·6	327·5	328·8		330·3	332·2	333·8	335·9	338·1	340·3	342·7	345·1	347·5	349·8
192·7	205·1	217·4	229·8	242·2	254·5	266·9	279·1	291·5		303·5	315·2	327·1	338·8	350·0	0·7	10·8	20·7	29·5	36·8
152·0	153·1	154·8	155·3	156·0	156·8	157·6	157·9	158·3		158·6	158·3	158·1	157·9	157·2	156·6	155·9	155·1	154·3	153·4
181·4	188·1	194·7	201·7	208·6	215·5	222·5	229·6	236·8	**1834**	244·1	251·4	258·8	266·3	273·9	281·3	289·1	296·7	304·4	312·2
173·1	190·7	208·6	223·8	236·0	240·7	237·4	230·2	231·2		241·2	255·5	272·1	289·9	307·8	325·0	339·6	349·8	351·1	344·4
9·8	7·9	6·5	5·3	4·1	3·1	2·5	2·2	2·2		2·7	3·3	4·4	5·6	7·2	9·0	10·8	13·0	15·2	17·4
138·4	150·1	162·3	174·5	186·9	199·1	211·5	224·0	236·8		249·2	261·9	274·6	286·9	299·7	312·2	324·8	337·3	349·7	2·1
162·8	163·9	165·1	166·2	167·2	168·2	169·1	169·6	170·1		170·6	170·6	170·7	170·6	170·1	169·6	169·1	168·3	167·6	166·8
77·4	81·7	85·8	88·4	90·2	91·2	91·0	89·1	86·4	**1835**	83·0	78·9	76·3	74·1	73·5	74·2	76·1	78·5	81·9	85·8
188·1	204·2	217·4	224·7	223·6	215·8	214·2	221·5	235·4		251·5	268·8	286·6	303·8	319·0	330·1	333·5	327·7	322·5	326·9
48·4	47·8	46·9	45·8	44·6	43·3	41·8	40·7	39·6		38·7	38·4	38·0	38·3	38·8	39·7	40·8	42·1	43·6	45·4
220·1	229·9	238·5	245·8	252·2	253·8	253·0	248·4	244·5		240·0	240·3	244·5	250·9	258·5	267·3	277·7	288·6	299·5	310·6
173·4	174·6	175·8	177·7	178·1	180·1	180·2	180·8	181·5		182·3	182·5	182·7	182·8	182·5	182·2	181·9	181·1	180·4	179·8
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 6	Mr 16	Mr 26	Ap 5
196·6	201·5	208·4	215·3	222·3	229·4	236·7	244·1	251·5	**1836**	259·3	266·9	277·5	282·2	290·0	298·0	305·5	313·5	321·5	329·2
198·4	207·8	209·1	201·6	198·0	203·2	215·6	231·1	248·1		265·5	282·8	298·4	310·6	315·9	311·9	305·4	307·2	318·4	333·5
82·1	82·4	83·1	82·9	82·5	81·7	80·5	79·5	78·2		77·0	75·7	74·6	73·5	72·9	72·6	72·5	72·7	73·4	74·4
174·1	186·7	199·4	211·6	224·1	236·6	249·3	262·0	274·6		287·0	299·6	312·1	324·4	336·5	349·0	0·9	12·5	24·6	36·3
183·8	185·0	186·2	187·4	188·5	189·6	190·7	191·5	192·3		193·2	193·6	194·1	194·5	194·8	194·2	194·1	193·5	192·9	192·4
																Mr 7	Mr 17	Mr 27	Ap 6
97·7	103·3	108·1	112·7	116·9	120·7	123·8	125·7	126·6	**1837**	126·8	125·5	122·7	119·4	118·2	112·0	109·1	107·7	107·5	108·8
193·8	188·6	182·5	185·4	196·4	211·0	227·3	244·9	262·1		278·1	291·2	298·3	296·3	288·9	288·4	297·7	311·3	328·9	347·3
111·1	112·4	113·6	114·6	115·2	115·6	115·6	115·3	114·6		113·7	112·6	111·3	110·0	108·7	107·5	106·5	105·7	105·2	105·1
127·3	137·5	148·6	159·4	171·4	182·9	194·7	207·0	219·2		231·5	243·8	256·2	268·7	281·2	293·8	306·1	318·6	331·1	348·4
194·0	195·2	196·4	197·5	198·7	199·7	201·0	201·8	202·2		203·8	204·4	205·0	205·6	205·6	205·8	205·9	205·4	205·0	204·5
208·5	215·3	222·6	229·7	236·9	244·6	252·9	259·6	267·2	**1838**	275·0	282·8	290·5	298·4	306·2	314·1	321·9	330·0	337·8	345·6
167·4	167·2	176·9	190·7	207·0	224·4	241·5	258·0	271·8		280·6	281·2	273·7	270·9	277·7	290·8	307·0	325·0	343·6	1·6
136·5	138·6	140·4	141·9	143·7	144·6	145·5	146·2	146·7		146·7	146·3	145·8	144·9	143·8	142·5	141·3	139·9	138·6	137·9
210·3	222·1	234·0	246·0	257·6	269·0	280·1	290·9	301·0		310·6	318·6	325·3	329·6	330·3	327·0	321·3	316·4	314·8	316·8
204·0	205·2	206·4	207·5	208·7	209·9	211·0	212·0	213·1		214·1	214·8	215·5	216·3	216·6	216·8	217·2	217·0	216·7	216·5
113·3	119·4	124·6	130·2	135·4	140·2	145·0	149·0	152·0	**1839**	155·4	157·6	158·6	158·6	157·2	154·2	150·6	146·7	143·4	141·2
157·5	170·7	186·8	203·9	221·3	237·7	252·5	263·1	265·6		259·6	257·4	258·6	270·3	285·7	303·0	321·3	339·4	356·6	11·1
160·7	162·8	164·9	166·9	168·9	170·7	172·2	173·7	174·9		175·8	176·5	176·7	176·9	176·5	175·9	175·0	173·9	172·8	171·4
155·7	168·0	180·6	192·9	205·4	218·0	230·6	243·2	256·0		268·8	281·2	293·7	306·5	318·9	331·4	344·0	356·4	8·7	20·9
214·0	215·1	216·2	217·3	218·6	219·9	221·1	222·2	223·3		224·3	225·2	226·0	226·9	227·3	227·7	228·0	228·0	228·0	227·9

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999;

Day of I.E.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1839 Mars	..	140·2	139·7	140·2	142·1	144·7	148·0	151·9	156·4	161·3	166·6	172·3	178·0	184·0	190·3	196·7	203·2	209·9	217·1
Merc.	...	16·5	21·5	16·3	10·7	14·4	26·8	42·8	60·9	79·9	98·3	115·9	131·1	141·8	143·6	137·2	132·7	138·0	150·5
Jup.	...	170·7	169·4	168·3	167·5	166·7	166·3	166·3	166·5	167·2	168·0	169·1	170·4	172·1	173·8	175·7	177·6	179·7	181·8
Ven.	...	27·3	39·4	51·3	63·3	75·2	86·8	98·2	109·6	120·7	131·4	141·8	151·3	160·2	167·9	173·9	177·8	177·8	174·0
Sat.	...	227·8	227·2	226·6	226·0	225·2	224·4	223·7	223·0	222·3	221·7	221·4	221·2	221·0	221·2	221·5	221·8	222·5	223·2
1840 Mars	...	5·3	12·7	19·9	27·3	34·4	41·6	48·8	55·8	62·7	69·3	76·2	83·0	89·2	95·8	102·5	108·8	115·0	120·9
Merc	...	358·8	352·0	354·1	5·0	20·3	38·1	56·5	75·3	93·2	110·0	121·4	126·1	121·3	115·4	118·9	130·2	145·3	162·3
Jup.	...	204·3	203·6	202·4	201·0	199·8	198·6	197·8	196·9	196·5	196·5	196·6	197·3	198·1	199·2	200·6	202·2	203·9	205·9
Ven.	...	332·2	344·4	356·5	8·9	21·1	33·3	45·6	57·8	69·7	82·4	94·6	106·9	119·1	131·4	143·2	156·0	168·5	180·7
Sat.	...	239·2	238·4	238·5	237·8	237·1	236·4	235·8	234·9	234·2	233·4	232·9	232·5	232·1	232·2	232·3	232·3	232·9	233·5
1841 Mars	...	187·2	183·9	180·4	178·3	177·0	177·2	178·6	181·0	184·3	188·3	192·9	197·7	203·5	209·3	215·0	221·4	227·9	234·5
Merc.	...	334·5	343·3	357·8	15·5	34·2	53·2	71·7	88·5	101·6	108·2	105·0	98·3	89·4	109·7	124·3	141·2	159·0	176·6
Jup.	...	238·1	237·8	237·0	236·2	235·0	233·7	232·4	231·1	229·9	228·8	228·1	227·7	227·5	227·7	228·3	229·1	230·3	231·6
Ven.	...	38·9	41·9	41·1	36·6	30·6	25·8	25·0	28·2	33·9	41·5	50·3	59·8	70·1	80·8	92·0	103·3	115·0	126·9
Sat.	...	250·3	250·0	249·8	249·5	248·8	248·2	247·5	246·8	246·0	245·3	244·6	244·0	244·4	243·3	243·2	243·1	243·4	243·9
1842 Mars	...	20·1	27·3	34·4	41·6	48·4	55·4	62·1	68·9	75·8	82·4	89·0	95·5	102·0	108·4	115·8	126·1	127·4	133·9
Merc.	...	336·1	352·9	11·0	30·0	48·8	66·0	80·5	89·1	88·0	80·7	79·9	88·7	102·5	119·7	137·6	155·5	172·5	188·0
Jup	...	269·6	270·3	270·7	270·8	270·6	270·0	269·2	268·0	266·7	265·3	264·0	262·7	261·6	260·9	260·3	260·1	260·3	260·8
Ven.	...	9·4	21·7	34·0	46·2	58·4	70·8	82·7	94·7	106·6	118·6	130·4	142·4	154·1	165·5	177·4	188·3	199·4	210·2
Sat.	...	261·3	261·2	261·2	261·1	260·5	259·9	259·3	258·5	257·7	257·0	256·3	255·7	255·0	254·8	254·5	254·1	254·3	254·5
1843 Mars	...	237·3	239·2	240·2	240·1	239·0	237·1	233·7	231·6	229·6	228·8	229·9	230·7	233·5	237·1	241·6	246·6	252·2	257·9
Merc.	...	348·6	7·3	26·0	43·6	58·9	69·1	70·2	63·4	60·5	67·8	81·3	97·8	115·8	134·1	151·8	167·2	180·6	186·9
Jup.	...	299·0	300·7	302·3	303·4	304·3	305·0	305·2	305·2	304·7	304·0	303·0	301·8	300·5	299·0	297·7	296·6	295·6	294·9
Ven.	...	317·0	328·6	340·5	352·4	4·4	16·4	28·1	40·1	52·2	64·4	76·5	88·4	100·5	112·9	125·1	137·5	149·9	162·3
Sat.	...	272·1	272·3	272·4	272·5	272·2	271·8	271·4	270·6	269·8	269·1	268·4	267·7	266·9	266·5	265·0	265·4	265·5	265·4
1844 Mars	...	34·8	41·6	48·4	55·2	61·8	68·6	75·1	81·6	88·0	94·8	101·3	107·5	114·1	120·5	126·7	133·0	139·4	145·9
Merc.	...	3·3	21·2	36·9	48·3	51·5	45·2	41·0	46·6	59·3	75·6	93·6	112·2	130·3	147·1	161·3	169·7	169·2	162·2
Jup.	...	327·2	329·5	331·6	333·5	335·5	337·1	338·4	339·6	340·5	341·0	341·2	341·0	340·5	339·6	338·6	337·3	336·0	334·5
Ven.	...	42·5	53·5	64·2	74·7	84·0	93·1	100·2	105·8	108·4	107·1	102·1	95·1	91·5	91·4	94·5	100·5	108·4	117·0
Sat.	...	283·0	283·2	283·6	283·9	283·8	283·5	283·3	282·7	282·1	281·4	280·6	279·9	279·2	278·5	277·9	277·2	277·0	276·9
1845 Mars	...	268·0	272·9	279·5	284·7	289·8	294·7	298·9	302·4	305·1	306·9	307·6	306·3	304·4	301·8	299·5	298·2	298·1	299·1
Merc.	...	14·8	27·3	32·1	27·7	21·7	25·5	37·3	53·2	71·2	90·0	108·4	125·9	141·0	151·2	153·2	146·7	142·3	148·0
Jup.	...	354·9	357·2	359·6	2·0	4·4	6·6	8·8	10·7	12·5	14·0	15·4	16·5	17·2	17·7	17·7	17·4	16·8	15·9
Ven.	...	350·7	3·2	15·5	28·0	40·2	52·4	64·7	77·3	89·4	101·2	113·8	125·9	138·0	150·0	162·3	174·5	186·6	198·6
Sat.	...	293·8	294·4	295·0	295·5	295·4	295·5	295·5	295·0	294·5	294·1	293·3	292·5	291·6	290·9	290·3	289·7	289·3	288·9
1846 Mars	...	49·6	55·9	62·3	68·7	75·0	81·4	87·7	94·0	100·4	106·8	113·1	119·6	125·7	132·2	138·6	145·3	151·3	157·8
Merc.	...	12·8	10·2	3·2	4·7	15·5	30·7	48·6	67·3	86·3	103·8	120·1	132·4	136·4	131·7	125·6	128·7	140·0	154·8
Jup.	...	22·6	24·9	27·3	29·7	32·1	34·5	36·8	39·2	41·4	43·5	45·5	47·4	49·0	50·6	51·7	52·6	53·2	53·4
Ven.	...	315·3	325·1	333·4	342·5	352·6	3·3	13·9	25·1	36·4	48·1	59·9	71·5	83·3	95·2	107·2	119·5	131·7	144·0
Sat.	...	304·7	305·4	306·2	306·9	307·1	307·3	307·3	307·2	306·9	306·6	306·9	305·4	304·6	303·8	303·0	302·2	301·7	301·2
1847 Mars	...	290·3	297·3	304·4	311·5	318·5	325·4	332·3	338·8	345·2	351·4	357·1	2·6	7·5	11·8	15·3	17·9	18·9	18·7
Merc.	...	345·5	344·7	353·3	8·2	25·6	44·3	63·4	81·7	98·6	112·0	118·7	115·8	108·7	109·4	119·6	134·0	150·7	168·4
Jup.	...	50·2	52·3	54·3	56·5	58·7	60·9	63·4	65·7	68·0	70·4	72·7	74·8	77·0	79·0	80·9	82·5	84·1	85·3
Ven.	...	27·9	40·0	51·9	63·9	75·7	87·3	98·7	110·0	121·1	131·7	142·0	151·3	160·0	167·4	173·0	175·8	175·4	175·6
Sat.	...	315·7	316·6	317·5	318·4	318·8	319·4	319·9	319·8	319·6	319·6	319·0	318·5	317·9	317·1	316·3	315·5	314·8	314·1
1848 Mars	...	64·4	70·3	76·1	82·2	88·3	94·3	100·3	106·5	112·6	118·9	125·2	131·3	137·7	144·1	150·4	157·0	163·3	169·9
Merc.	...	332·8	346·0	3·0	21·4	40·5	59·3	76·5	91·0	99·7	98·7	91·7	90·2	99·0	112·8	129·5	147·1	165·0	182·2
Jup.	...	78·9	80·1	81·6	83·2	85·0	87·1	89·0	91·2	93·5	95·8	98·0	100·3	102·6	104·7	106·9	109·1	111·1	112·9
Ven.	...	332·6	345·0	357·2	9·6	21·7	33·9	46·1	58·0	70·7	83·0	95·1	107·1	119·7	132·0	144·0	156·6	169·1	181·3
Sat.	...	326·9	327·9	329·0	330·0	330·7	331·3	332·0	332·2	332·4	332·5	332·1	331·8	331·4	330·7	330·6	329·1	328·3	327·5
1849 Mars	...	309·2	315·8	324·4	332·1	339·5	347·0	354·3	1·5	9·0	15·8	22·7	29·4	35·6	41·7	47·6	53·0	57·4	62·7
Merc.	...	340·6	358·7	17·6	36·3	54·2	69·4	79·6	81·0	74·2	71·2	78·5	91·4	107·9	125·3	143·9	161·3	177·3	190·0
Jup.	...	109·3	109·5	110·0	110·8	112·0	113·3	114·9	116·6	118·4	120·4	122·6	124·8	126·9	129·1	131·4	133·6	135·7	137·9
Ven.	...	37·5	39·6	38·1	32·6	26·7	22·8	23·3	27·0	33·1	41·2	50·1	59·9	70·4	81·2	92·2	103·6	115·4	127·1
Sat.	...	338·1	339·3	340·4	341·6	342·5	343·3	344·3	344·8	345·3	345·6	345·4	345·3	345·2	344·5	343·9	343·3	342·5	341·7
1850 Mars	...	80·6	85·7	90·9	96·5	101·9	107·9	113·6	119·3	125·4	131·4	137·5	143·8	150·1	156·1	162·9	169·2	175·8	182·5
Merc.	...	354·9	13·5	31·6	47·4	59·1	62·6	56·8	52·0	57·1	69·8	85·9	103·8	122·2	140·4	156·7	170·8	179·1	178·7
Jup.	...	141·7	142·9	140·4	140·1	140·4	140·9	141·7	142·7	144·0	145·4	147·2	149·1	151·0	153·0	155·1	157·3	159·5	161·7
Ven.	...	10·0	22·3	34·5	46·8	59·2	71·4	83·2	95·4	107·2	119·2	131·2	142·7	154·4	166·1	177·7	188·7	199·6	210·2
Sat.	...	349·7	351·0	352·3	353·5	354·6	355·7	356·7	357·4	358·0	358·7	358·8	359·0	359·0	358·6	358·2	357·7	356·9	356·1
1851 Mars	...	326·7	334·5	342·3	349·9	357·5	5·2	12·5	19·8	27·1	34·3	41·8	48·1	54·6	61·2	67·6	73·7	79·7	85·3
Merc.	...	9·0	25·4	38·1	44·0	39·1	33·1	36·4	47·8	63·5	81·5	100·2	118·4	135·8	150·8	161·2	163·2	156·7	152·2
Jup.	...	175·4	174·1	172·8	172·0	171·2	170·5	170·4	170·5	170·9	171·7	172·7	174·0	175·4	177·2	179·0	180·9	183·0	185·1
Ven.	...	317·3	329·2	341·0	352·9	4·7	16·9	28·6	40·6	52·7	64·9	77·0	89·1	101·2	113·4	125·6	138·0	150·4	162·9
Sat.	...	1·5	2·8	4·1	5·4	6·6	7·8	9·0	9·8	10·7	11·6	12·0	12·4	12·9	12·7	12·5	12·3	11·7	11·0

Mesh	Vri. b.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·6	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 6	Mr 16	Mr 26	Ap 5
228·8	230·8	238·1	245·3	252·9	260·4	268·4	275·7	283·6	**1840**	291·3	299·1	307·0	314·8	322·5	330·4	338·2	345·9	353·6	1·1
166·1	188·2	200·7	217·6	232·9	244·9	249·9	246·0	239·0		240·4	250·6	265·3	281·7	299·6	317·6	334·7	349·8	0·3	2·0
184·0	186·8	188·4	190·5	192·7	194·9	196·9	198·9	200·6		202·2	203·7	205·0	205·9	206·5	207·0	207·1	206·7	206·2	205·8
168·5	163·6	162·2	164·8	170·3	178·0	186·9	196·7	207·2		218·2	229·7	241·1	253·1	265·0	277·1	289·3	301·4	313·5	325·8
223·9	225·0	226·0	227·0	228·2	229·4	230·5	231·6	232·8		233·9	234·9	235·9	236·9	237·5	238·1	238·8	238·9	239·1	239·2
																Mr 7	Mr 17	Mr 27	Ap 6
127·3	133·3	139·0	144·8	150·5	156·2	161·5	166·7	171·9	**1841**	176·5	180·0	185·0	188·3	191·3	193·2	193·9	193·7	191·8	189·2
179·2	197·3	213·8	226·3	233·9	232·5	225·2	223·0	230·7		244·7	260·8	278·5	296·2	313·5	328·8	340·0	344·0	338·3	333·0
207·9	209·9	212·1	214·3	216·5	218·7	220·9	223·2	225·3		227·4	229·4	231·2	232·9	234·5	235·8	236·7	237·6	238·1	238·1
193·2	205·8	218·0	230·5	242·8	255·2	267·5	279·8	292·1		304·0	315·6	327·5	339·2	350·3	0·9	11·2	20·7	29·3	36·0
234·1	235·0	235·9	236·9	238·0	239·1	240·3	241·5	242·6		243·8	244·8	245·8	246·9	247·7	248·5	249·3	249·6	249·7	250·3
241·5	248·6	255·7	263·0	270·4	278·2	285·6	293·3	301·1	**1842**	308·7	316·5	324·2	331·6	339·3	346·9	354·3	1·8	8·8	16·2
193·4	207·6	217·1	217·9	211·0	206·8	212·6	224·9	240·3		257·5	275·0	292·4	308·1	320·5	326·1	321·9	315·6	317·4	328·2
233·2	234·8	236·8	238·9	240·9	243·2	245·4	247·7	250·0		252·3	254·6	256·7	258·9	261·0	262·9	264·8	266·4	267·7	269·0
138·9	150·6	162·8	175·1	187·5	199·8	212·2	224·6	237·2		249·8	262·5	275·2	287·6	300·3	312·8	325·4	338·0	350·3	2·7
244·2	245·2	246·0	246·7	248·0	249·0	250·1	251·3	252·5		253·6	254·7	255·8	257·0	257·8	258·7	259·6	260·1	260·6	261·2
189·9	146·1	152·2	158·3	164·3	170·4	176·2	181·9	188·9	**1843**	193·7	199·4	204·7	209·9	215·1	220·0	224·6	228·9	232·5	285·8
199·2	202·9	197·5	191·7	194·6	205·2	219·9	236·7	254·1		271·4	287·6	300·8	308·0	306·1	298·9	298·5	307·3	321·8	338·9
261·6	262·7	264·0	265·6	267·3	269·3	271·4	273·5	275·5		278·0	280·3	282·8	285·0	287·4	289·7	292·0	294·2	296·2	298·2
220·2	228·9	238·2	245·1	251·1	251·8	250·1	244·1	240·8		236·6	238·1	243·0	250·0	258·0	266·6	277·6	288·7	299·7	310·9
254·7	255·4	256·1	256·9	257·9	258·9	259·9	261·1	262·2		263·4	264·6	265·8	267·0	267·9	268·9	269·9	270·5	271·3	271·8
																Mr 6	Mr 16	Mr 26	Ap 5
264·1	270·6	277·2	284·1	291·2	298·2	305·5	312·7	319·9	**1844**	327·2	334·5	341·8	348·9	356·1	3·1	10·3	17·3	24·3	31·0
185·1	176·6	170·7	186·1	199·9	216·3	233·5	250·9	267·5		281·2	290·4	290·5	283·6	279·8	287·4	300·5	316·8	334·9	353·5
294·5	294·5	294·9	295·6	296·6	297·8	299·3	301·1	302·9		304·9	307·1	309·4	311·7	314·1	316·5	319·0	321·3	323·7	326·1
174·8	187·3	200·0	212·3	224·7	237·3	249·8	262·7	275·3		287·7	300·3	312·6	325·0	337·1	349·6	1·4	13·3	25·2	36·7
265·5	266·0	266·6	267·1	268·1	268·9	269·9	271·1	272·3		278·4	274·6	275·8	276·9	278·0	279·1	280·2	281·0	281·9	282·7
																Mr 7	Mr 17	Mr 27	Ap 6
152·1	158·4	164·7	170·9	177·3	183·7	189·9	196·2	202·7	**1845**	208·9	215·2	221·5	227·7	234·1	240·3	246·5	252·7	258·9	265·0
159·4	166·8	180·0	195·8	213·0	230·4	246·9	261·7	272·8		274·9	268·7	263·8	268·0	279·7	295·3	313·0	331·3	349·5	6·5
333·2	332·1	331·2	330·7	330·4	330·6	331·1	332·2	333·0		334·3	336·0	337·8	339·7	341·9	344·1	348·4	348·8	351·2	353·4
127·2	137·8	148·7	159·9	171·7	183·5	195·2	207·6	219·9		232·1	244·4	256·8	269·4	281·9	294·5	306·9	319·1	331·7	344·1
276·7	277·0	277·4	277·7	278·5	279·4	280·2	281·3	282·4		283·4	284·7	285·9	287·0	288·2	289·5	290·6	291·5	292·4	293·4
301·7	304·9	309·3	313·7	318·9	324·5	330·1	336·0	342·2	**1846**	348·4	355·4	1·0	7·8	13·8	20·1	26·6	33·1	39·5	46·0
159·9	175·4	192·5	209·9	226·8	242·1	254·0	259·0	254·8		248·1	249·8	259·8	274·4	291·4	309·3	327·7	344·7	0·0	10·7
14·8	13·5	12·1	10·7	9·4	8·4	8·7	7·1	7·0		7·2	7·8	8·7	9·8	11·3	12·9	14·7	16·8	18·9	21·1
210·8	222·6	234·4	246·4	257·9	269·4	280·4	291·1	300·9		310·4	318·2	324·5	328·2	328·2	324·1	317·9	313·1	312·5	315·4
288·3	288·5	288·6	288·7	289·4	290·1	290·6	291·6	292·6		293·7	294·9	296·1	297·2	298·4	299·6	300·9	302·0	303·7	304·1
164·2	170·7	177·1	185·7	190·2	197·0	203·4	210·0	216·8	**1847**	223·6	230·5	237·4	244·2	251·3	258·1	265·2	272·2	279·4	286·3
171·4	188·9	206·6	222·5	235·7	242·7	241·3	233·8	282·1		240·2	254·0	270·3	287·9	305·8	323·3	338·9	350·5	354·1	349·1
53·4	52·9	52·2	51·1	49·9	48·6	47·2	45·9	44·8		43·8	43·1	42·8	42·8	43·1	43·8	44·8	46·1	47·6	49·2
156·8	168·6	181·0	193·5	206·0	218·6	231·2	248·8	256·6		269·5	281·8	294·3	307·1	319·5	332·0	344·7	357·0	9·3	21·5
300·7	300·6	300·4	300·3	300·8	301·2	301·7	302·6	303·5		304·3	305·4	306·6	307·7	309·0	310·3	311·5	312·8	314·0	315·1
																Mr 6	Mr 16	Mr 26	Ap 5
17·2	14·8	12·2	9·5	8·7	8·2	8·6	10·4	18·0	**1848**	16·3	20·0	24·2	28·9	33·8	39·1	44·3	49·9	55·8	61·8
186·1	202·6	216·6	226·0	227·0	219·9	216·0	221·7	233·8		249·5	266·7	284·9	301·9	317·8	330·3	336·1	332·7	326·0	327·5
86·4	87·2	87·6	87·6	87·3	86·7	85·8	84·6	83·4		82·0	80·7	79·5	78·4	77·6	77·1	76·9	77·1	77·5	78·4
164·7	160·2	159·6	163·1	169·3	177·5	186·7	196·6	207·3		218·4	230·0	241·4	253·5	265·5	277·6	289·8	301·9	314·1	326·4
313·3	313·1	312·9	312·5	312·7	312·9	313·2	314·0	314·7		315·4	316·5	317·6	318·7	319·9	321·1	322·4	323·6	324·9	326·2
																Mr 7	Mr 17	Mr 27	Ap 6
176·6	183·0	189·7	196·5	203·2	210·2	217·0	224·0	231·1	**1849**	238·3	245·5	252·8	260·0	267·4	275·1	282·4	289·8	297·4	305·2
197·3	208·5	212·0	206·6	200·7	203·2	214·3	229·3	245·8		263·5	280·8	297·1	310·4	318·0	316·4	309·2	308·2	317·5	331·7
114·7	116·3	117·5	118·6	119·4	119·9	119·9	119·8	119·3		118·4	117·4	116·2	114·9	113·6	112·3	111·2	110·2	109·7	109·4
194·0	206·4	218·8	231·2	243·4	255·8	267·9	280·4	292·4		304·5	316·2	325·0	339·4	350·4	1·1	11·0	20·5	28·7	35·1
326·8	326·3	325·8	325·2	325·3	325·3	325·3	325·8	326·3		327·0	328·0	329·0	330·0	331·2	332·4	333·6	334·9	336·2	337·5
66·9	70·1	72·5	74·0	74·3	73·2	70·8	67·7	64·2	**1850**	60·8	58·9	58·2	58·5	60·1	62·5	65·9	69·4	73·8	78·2
195·9	193·1	185·7	186·2	195·3	209·1	225·4	242·7	265·2		276·6	290·6	299·7	300·5	293·2	290·2	297·0	310·0	326·8	345·0
140·2	141·9	143·8	145·5	147·0	148·3	149·5	150·2	150·8		150·9	150·7	150·3	149·6	148·5	147·2	146·0	144·4	143·4	142·2
138·6	151·2	163·2	175·4	187·9	200·2	212·6	225·2	237·9		250·3	263·0	275·5	288·3	300·8	313·5	325·9	338·5	351·0	3·4
340·8	340·1	339·5	338·8	338·5	338·2	338·1	338·4	338·8		339·1	339·9	340·8	341·6	342·7	343·9	345·1	346·4	347·7	348·9
189·3	196·1	202·8	209·9	216·8	224·0	231·2	238·4	245·9	**1851**	253·4	260·7	268·2	276·0	283·6	291·3	299·2	307·0	314·7	322·7
171·3	168·5	176·0	189·2	205·1	222·2	239·4	256·3	271·0		281·4	284·3	278·4	273·2	277·6	289·4	305·1	322·9	341·3	359·5
163·9	166·0	168·1	170·2	172·2	174·0	175·7	177·2	178·5		179·6	180·4	180·8	181·0	180·9	180·4	179·5	178·6	177·4	176·0
219·9	229·6	237·7	244·5	248·3	247·7	246·4	239·9	234·9		233·8	236·2	241·6	248·2	257·0	267·5	278·0	288·9	300·0	311·3
355·4	354·6	353·7	352·9	352·5	352·0	351·7	351·6	351·8		351·9	352·5	353·2	353·8	354·9	355·9	357·0	358·2	359·4	0·7
																Mr 6	Mr 16	Mr 26	Ap 5
90·8	95·7	100·3	104·4	107·9	110·7	112·9	113·7	113·6	**1852**	111·9	109·3	105·6	101·8	98·4	96·0	94·9	95·1	96·5	98·9
157·4	169·4	184·8	201·7	219·1	236·1	251·3	263·3	269·2		264·3	257·4	259·1	269·2	283·9	301·0	319·2	337·6	355·0	10·4
187·2	189·5	191·6	193·8	196·0	198·1	200·3	202·2	204·1		205·8	209·3	208·7	209·8	210·5	211·1	211·3	211·1	210·7	210·0
175·3	187·8	200·3	212·8	225·2	238·0	250·5	263·2	275·8		288·2	300·8	313·1	325·5	337·7	349·9	1·9	13·6	25·5	36·8
10·3	9·5	8·7	7·8	7·2	6·5	5·8	5·7	5·5		5·3	5·7	6·1	6·5	7·4	8·3	9·1	10·3	11·5	12·7

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Srav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1852	Mars ...	100·5	103·9	107·9	112·4	117·2	122·4	128 2	133·3	139·0	144·8	150·8	157·0	163 2	169·5	175·9	182·4	189·1	195·9
	Merc. ...	16·7	23·9	21·1	14·2	15·3	25·9	41·1	59·0	77·6	96·0	113·9	130·0	142·3	146·7	141·6	135·5	138·5	149·2
	Jup. ...	209·5	208·4	207·1	205·8	204·4	203·3	202·3	201·4	200·8	200·6	200·7	201 i	201·9	203·0	204·2	206·7	207·3	209·2
	Ven. ...	43·0	54·2	64·7	74·8	84·1	92·6	99·5	104·6	106·4	104·2	98·3	92·0	89·0	84·9	83·6	99·8	108·2	117·2
	Sat. ...	13·5	14·1	16·1	17·5	18·0	20·1	21·4	22·5	23 5	24·6	25·2	26·0	26·6	26·8	26·8	26·9	26·5	26·1
1853	Mars ...	343·5	351·2	358·7	6·4	13·9	21·4	28·7	35·8	43·1	50·0	57·0	63·6	70·2	76·9	83·4	89·6	95·8	101·8
	Merc. ...	3·5	356·0	355·4	4·1	18·8	36·1	54·3	73·5	91·7	108·8	121·7	128·9	125·9	118·7	119·8	129·1	143·8	160·5
	Jup. ...	242·6	242·4	241·8	241·0	240·0	238·7	237·4	236·0	234·8	233·7	232·7	232·2	231·9	232·0	232·4	233·1	234·1	235·3
	Ven. ...	351·3	3·7	16·1	28·6	40·8	53·2	65·3	77·7	89·7	102·0	114·2	126·5	138·6	150·8	163·0	174·9	187·0	199·0
	Sat. ...	25·9	27·2	28·5	29·7	31·1	32·5	33·9	35·1	36·3	37·5	38·4	39·2	40·1	40·5	40·9	41·3	41·1	41·0
1854	Mars ...	126·7	127·6	129·6	132·1	135·7	139·8	144·3	149·2	154·5	159·9	165·8	171·6	177·8	184·0	190·4	196·9	203·8	210·5
	Merc. ...	336·0	342·7	356·3	13·3	31·9	51·0	69·6	87·0	101·8	110·1	109·7	102·4	100·7	108·8	122·8	139·2	156·0	174·6
	Jup. ...	273·8	274·7	275·2	275·4	275·4	275·0	274·1	273·1	271·9	270·6	269·3	268·0	266·8	265·8	265·2	264·8	264·8	265·1
	Ven. ...	317·4	324·4	332·9	342·4	352·5	3·4	14·2	25·4	37·2	48·5	60·2	71·9	84·0	95·6	107·9	120·1	132·2	144·5
	Sat. ...	38·4	39·7	41·0	42·3	43·6	44·9	46·3	47·6	48·9	50·2	51·3	52·4	53·4	54·1	54·8	55·4	55·5	55·5
1855	Mars ...	359·1	6·8	14·3	21·8	29·1	36·1	43·3	50·3	57·3	64·1	71·1	77·5	84·4	90·9	97·2	103·6	109·8	115·9
	Merc. ...	334·7	350·8	8·8	27·7	48·1	64·5	79·9	90·5	92·1	85·2	81·8	88·5	101·4	117·7	135·3	153·4	171·0	186 8
	Jup. ...	303·0	304·7	306·4	307·7	308·7	309·6	309·9	310·1	309·8	309·3	308·5	307·3	306·0	304·6	303·3	302·0	300·9	300·1
	Ven. ...	28·4	40·4	52 4	64·4	75·8	87·6	99·0	110 8	122·3	133·6	142·9	151 2	159·9	167·0	172·1	174·3	173·2	167·8
	Sat. ...	51·3	52·6	53·8	54·9	56·2	57·5	58·7	60·2	61·6	62·9	64·1	65·4	66·6	67·4	68·3	69·2	69·6	70·4
1856	Mars ...	166 3	163·3	161·8	161·2	161·7	163·6	166·5	169·9	174 0	178·6	183·8	189·2	195·1	201·1	207·2	213·9	220·4	227·3
	Merc. ...	346·3	4 9	23·8	41·9	58·0	70·1	73 8	68·0	62·8	68·1	79·8	95·8	113·6	131·8	149·7	166·1	180·2	188 6
	Jup. ...	331·1	333·3	335·5	337·5	339 5	341·2	342·8	344·0	345·1	345·8	346·2	346·1	345 9	345·1	342·2	342·9	341·7	340·3
	Ven. ...	333·3	345·6	358·0	10·2	22·4	34·4	46 8	59·1	71 2	83·5	95·7	108·0	120·2	132·5	144 8	157·1	169·6	181·8
	Sat. ...	64·5	65·5	66·6	67·6	68·9	70·2	71·4	72·8	74·1	75·4	76·7	78·0	79·3	80·4	81·5	82·5	83·1	83·8
1857	Mars ...	14·2	21·6	28·7	36·0	42 9	50·2	56·9	63·8	70·6	77·2	83·9	90·6	97·0	103·6	109·9	116·2	122·7	128·8
	Merc. ...	1·1	19·4	35·5	48·6	54·4	50·5	44·2	47·1	58·3	73·8	91·5	110·1	128·3	145·4	160·8	170·8	172·8	166·2
	Jup. ...	358·7	1·1	3·5	6·0	8 2	10·5	12·7	14 7	16·7	18·2	19·7	21·0	21·9	22·4	22·7	22·6	22·1	21·4
	Ven. ...	36 2	37·2	34·9	28·5	22·9	20·3	21·4	26·0	32·7	41·1	50 2	59·9	70·4	81·5	92·7	104·2	115·9	127·8
	Sat. ...	78·1	78·9	79·7	80·5	81·6	82·8	84·0	85 3	86 6	87·8	89 3	90·6	92·0	93·1	94·3	95·4	96·4	97·2
1858	Mars ...	220·2	213·5	217·5	216·0	211·8	208·8	207 1	206·1	206·8	208·6	211·3	214·9	219·1	224·2	229·3	235·1	241·3	247·7
	Merc. ...	13·7	27·4	34·5	32·5	25·4	26·3	36·3	51·5	69 2	87·9	106·2	124·2	140·1	151·9	156·3	151 6	145·3	147·9
	Jup. ...	26·4	28·7	31·0	33·4	35·8	38·2	40·5	42 9	45·2	47·3	49·4	51·4	53 0	54·7	55·9	57·0	57·7	58·1
	Ven. ...	10·6	22·9	35·1	47·7	59·8	72·0	83·8	95·9	107·1	119·7	131·7	143·4	154·9	166·6	178·0	189·2	199·9	210·3
	Sat. ...	91 7	92·2	92 7	93·3	94·4	95·5	96·4	96 9	98·8	100·1	101·5	102·9	104·2	105·4	106·6	107·9	108·9	110·0
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1859	Mars ...	29·0	36·2	42·8	49·7	56 6	63 4	70·2	76·7	83·1	89·8	96·4	102·8	109·2	115·7	122·1	128·5	134·7	141·1
	Merc. ...	14·4	14·5	7·3	5 9	14 9	29·1	46·4	65·0	83·9	102·2	118·8	132·1	138·9	136·2	130·0	129·6	139·2	153·0
	Jup. ...	54·1	56·0	58·9	60 1	62·3	64 5	66·9	69·2	71·6	73·9	76·2	78·4	80·6	82·6	84·6	86·4	88·0	89·4
	Ven.	317·7	329·6	341·4	353·4	5·3	17·2	29 2	41·2	53·1	65·9	77·7	89·9	101·8	114·1	126·4	138·6	151·0	163·4
	Sat. ...	105·5	105·7	105·9	106·3	107·1	108·0	108·7	109·8	110·9	112·6	113 4	114·7	115·9	117·2	118·5	119·9	121·0	122·1
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1860	Mars ...	257·5	262·1	266·8	270·8	274·1	276·8	278·1	278·8	278·3	276·6	273·8	271·8	267·2	269·7	269·7	272 0	275·1	279·0
	Merc. ...	349·9	346·6	353·2	6·5	23·6	42·1	61·1	79·7	97·1	111·3	120·7	119·9	112·6	110·8	119·1	132·3	148·8	166·2
	Jup. ...	82·9	84·1	85·4	86·9	88·7	90·6	92·6	94·7	96·9	99·2	101·4	103·6	105·9	108·2	110·4	112·5	114·6	116·5
	Ven. ...	43·2	54·5	64·7	74·8	83 9	92·4	98·4	103·0	103·8	100·7	94·4	88·3	86·5	87·7	92·5	99·4	107 9	117·2
	Sat. ...	119·4	119·3	119·2	119·3	119·9	120 6	121·1	122·0	123·0	124·0	125·2	126·5	127·7	129·0	130·3	131·6	132·8	134·0
1861	Mars ...	43·8	50·2	56·7	63·3	69 9	76·4	82·9	89·1	95·7	102·1	108·4	114·7	121·2	127·6	133·9	140·3	146·7	153·0
	Merc. ...	332·6	344·7	1·2	19·2	37·9	57·1	75·1	90·4	100·9	102·8	95·9	92·5	98·8	111·6	127·5	145·2	163·0	160·4
	Jup. ...	113·6	112·7	114·1	114·8	115·9	117·1	118·6	120·2	122·0	124·0	126·1	128·2	130·4	132·5	134·7	137·0	139·2	141·4
	Ven. ...	351·8	4·3	16·6	29·1	41·3	53·7	65·8	78·1	90·2	102·5	114·9	127·0	139·1	151·3	163·5	175·4	187·5	199·6
	Sat. ...	133·2	132·9	132·6	132·4	132·8	133·1	133 5	134·3	135·1	135·8	137·0	138·1	139·3	140·5	141·8	143·1	144·3	145·6
1862	Mars ...	282·0	288·8	295·3	302·1	308·6	315·1	321·1	327·0	332·9	338·0	342·8	346·6	350·6	351·6	352·4	351·8	350·0	347·4
	Merc. ...	338 8	356·5	15·2	34·2	52·4	68·6	80·4	84·7	79·2	73·8	78·5	90·3	106·0	123·5	141·5	159·6	176·0	189·6
	Jup. ...	146·3	147·4	144·8	144·4	144·4	144·8	145·5	146·4	147·6	149·0	150·6	152·4	154·3	156·3	158·4	160·5	162·7	164·9
	Ven. ...	316·4	323·9	332·8	342·8	352·8	3·8	14·6	25·9	37·6	49·1	60·8	72·4	84·6	96·2	108·6	120·7	132·9	145·2
	Sat. ...	146·9	146·4	146·9	145·5	145·5	145·7	145·7	146·3	146·9	147·5	148·5	149·5	150·5	151·7	152·9	154·1	155·4	156·7
Eng. date	...	Ap 12	Ap 23	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1863	Mars ...	58·5	64·6	70·8	76·8	82·9	89·2	95·5	101·7	107·8	114·2	120·5	126·8	133·1	139·4	145 8	152·2	158·7	165·1
	Merc. ...	352·5	11·4	29·6	46·5	59·7	65·5	61·7	55·2	58·0	68·5	84·2	101·5	119·8	138·0	155·2	170·1	180·3	182·0
	Jup. ...	180·1	178·8	177·5	176·5	175·6	174·9	174·5	174·5	174·8	175·4	176·4	177·5	178·9	180·5	182·4	184·2	186·2	188·3
	Ven. ...	29·0	40·9	52·9	64·8	75 9	87·9	99·4	110·5	121·5	131·6	141·6	150·9	159·2	165·5	169·9	171·1	167·8	161·6
	Sat. ...	160·3	159·6	159·0	158·4	158·2	158·1	158·0	158·2	158·6	159·0	159·9	160·7	161·5	162·6	163·7	164·8	166·0	167·2
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1864	Mars ...	301·9	309·3	316·9	324·2	331·8	339·1	346·6	353·5	0·6	7·4	13·9	20·2	26·3	32·1	37·6	42·2	46·5	50·3
	Merc. ...	7·1	24·1	38 1	45 9	43·8	36·5	37·5	47·0	61·9	79·4	97·8	116·2	134·1	149·8	161·7	166·1	161·2	154·8
	Jup. ...	214·2	213·1	211·9	210 6	209·2	208 0	207·0	206·0	205·3	204·9	204·9	205·2	205·8	206·7	207·9	209·2	210·9	212·7
	Ven. ...	334·1	346·4	358·1	10·9	23·6	35·4	47·7	59 7	72·0	84·1	96·5	109·2	121·2	133·3	146·3	157·9	170·4	182·6
	Sat. ...	173·4	172·7	172·0	171·3	170 9	170·5	170·1	170·2	170·4	170·6	171·1	171·7	172·4	173·4	174·4	175·4	176·6	177·8

Mesh.	Vrish.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66 7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
203·5	209·6	216·7	223·9	231·0	238·3	245·7	253·5	261·0	**1853**	268 7	276·5	284·2	291·9	299·8	307·7	315·6	323·6	331·3	339·3
164·3	181·0	198·4	215·7	231·5	244·5	251·9	250·3	242 5		241·3	249·8	263·2	279·6	297·3	315·5	333 0	348·9	0·9	5·2
211·2	213·2	215·4	217·6	219·8	222 1	224·2	226·5	228·7		230·8	232·7	234·8	236·5	238·1	239·6	240·7	241·6	242·3	242·5
127·4	138·3	149·3	160·4	172·0	184·1	196·0	208·3	2:0·6		232 7	245·0	257·7	270 1	282 6	295 2	307·6	319·8	332·4	344·8
25·6	24·8	26·1	23·2	22·4	21·7	20·8	20·3	19·8		19·4	19·5	19·7	19·8	20·5	21·2	21·9	23·0	24·1	25·2
107 6	113·5	118·7	124·0	128·8	133·3	137·3	139·9	143·6	**1854**	145·4	146·4	145·7	144 0	141·3	137·3	133·9	130 6	127·8	126·9
177·6	195·3	211·8	225·7	235·1	235·9	228·9	224·8	230·3		243·2	259·0	276·4	294·2	311·5	327·6	340·3	349·7	343·1	336·3
236·9	238·5	240·4	242·4	244·5	246·7	248·9	251 2	253·5		255 7	258·0	260·3	262·5	264·7	266·6	268·5	270·2	271·8	273·1
210·2	222·9	234·9	246·8	258·3	269·6	280·4	291·1	300·7		309·8	317·2	323·1	325·8	324·7	320·3	315·3	310 8	310·8	314·0
40·7	40·1	39·4	38·7	37 8	37·0	36·1	35·5	34·9		34·2	34·0	33·8	33·7	34·2	34·6	34·9	35 9	36 8	37·8
217·5	224·7	231·7	239·1	246·5	254·0	261·6	269·2	277·1	**1855**	284·7	292·7	300·6	308 4	316·2	324·0	332·0	330·8	347·4	355·2
191·6	206·5	217·5	221·0	215·5	209·6	212·5	223·5	238·5		255·3	273·0	290·3	306·7	320 2	327·9	326·6	319·3	318·6	327·3
265·8	266·7	267·9	269·5	271·1	273·0	274·0	277·1	279·3		281·6	283 9	286·3	288·6	291 0	293·4	295·7	297·9	300·0	302·0
156·8	169·1	181·5	194 1	206·5	219·3	231 7	244·4	257·1		270·1	282·5	2:5·0	307·6	320·0	332 5	345·2	357·5	9·8	22·0
55·6	55·2	54·7	54·2	53·4	52·6	51·7	51·0	50·2		49·4	49·1	48·7	48·2	48·3	48·5	48·7	49·4	50·1	50·8
																Mr 6	Mr 16	Mr 26	Ap 5
122·0	127·9	133·6	139·3	144·8	150·1	155·3	160·1	164·7	**1856**	169·1	172·5	175·6	178·0	179·0	179·4	178·2	175·6	172·0	168·0
199·3	205·2	202·1	194·8	195·0	204·4	218·2	234·5	252·0		269·5	286·1	300·3	309·5	310·2	303·4	300·0	307 0	320·2	336·8
289·8	299·4	299·5	300·1	300·9	302·1	303·4	305·0	306·8		308·8	310·9	313·1	315·5	317·9	320·2	322·7	325·5	327·5	329·8
161·3	158·3	158·1	163·0	169·2	177·3	186·7	196·8	207·5		218·8	230 3	241·9	254·0	266·2	278·1	290·1	302·5	314·6	326·9
70·3	70·1	69·9	69·8	69·1	68·4	67·7	66·8	66·0		65·1	64·5	63·8	63·1	62·9	62·8	62·7	63·2	63·6	64·1
																Mr 7	Mr 17	Mr 27	Ap 6
234·4	241·4	248·7	256·0	263·4	270·8	278·5	286·3	294·0	**1857**	301·8	309·6	317·2	324·9	332·6	340·4	347 9	355·4	3·0	10·3
187·9	180·5	178·1	186·0	198·2	214·3	231·2	248·7	265·4		280·5	291·3	2:4·0	288·0	282·8	287 5	299·0	314·9	332·8	351·2
338·9	337·7	336·7	335·9	335·5	335 5	335·7	336·5	337 4		338·6	340·1	341·9	343·7	345 7	348·0	350 2	352·6	354 9	357·4
194·5	206·7	219·1	231·6	243·7	255·8	268·6	280·7	292·9		304·7	316 7	328·5	339·8	350·7	1·3	10·1	19·8	30·1	34·0
84·5	84·5	84·5	84·5	84·1	83·7	83·2	82·3	81·5		80·7	79·9	79·2	78·4	78·0	77·6	77·1	77·3	77 5	77·6
125·0	140·9	147·1	153·0	159·0	164·8	170·5	176·3	181·8	**1858**	187·3	192·5	197·2	202 1	208·0	210·5	214·0	217·0	218·9	220·2
161·5	166·8	178·6	194·1	211·0	228·3	245·2	260·6	272·4		277·5	273·3	266·7	268·5	278·6	298 6	310 9	329·0	347·4	5·0
20·4	19·1	17·7	16·3	15·0	13·9	12·9	12·3	11·9		12 0	12·4	13·2	14·2	15·5	16·6	18·8	20·7	22·8	25·0
139·8	152·0	164·0	176·2	188·7	201·0	213·4	226·2	238·6		251·0	263·7	276·4	289·0	301·5	312·7	326·6	339·2	351·7	4·1
98·1	98·4	98·6	99·0	98·8	98·5	98·4	97·7	96 9		96 2	95·4	94·5	93·7	93·1	92·5	91·8	91·7	91·6	91·5
254·3	261·1	268·2	275·4	282·5	290·0	297·3	304·8	312·3	**1859**	319·8	327·2	334·6	342·1	349·5	356·6	3·9	11·1	18·2	25·3
158·9	173·7	190·5	207·7	225·0	240·9	253·8	260·9	259·2		251·7	250·8	258·7	272·8	289·4	307·3	325·5	343·2	359·0	11·3
58 2	58·1	57·4	56 5	55·3	54·0	52·6	51·4	50·1		49·0	48 2	47·7	47·5	47·8	48·2	49·0	50·2	51·5	53·2
220 1	229·6	236·7	243·1	246·0	246·4	242·2	236·4	231·5		231 1	234·8	240·7	248·8	257·9	267·8	278·1	289·2	300·7	311·8
111·0	111·5	112·1	112·7	112·8	112·8	112·8	112·3	111·7		111·2	110 4	109·6	108·9	108·1	107·3	106·5	106·1	105·8	105·4
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 7	Mr 17	Mr 27	Ap 6
147·2	153·6	159·7	166·1	172·1	178·5	184·6	190·7	196·7	**1860**	203·0	209·0	215·2	221·7	227·0	232 9	238·6	244·1	249·6	255·0
169·5	186·0	204·6	221·0	234·9	244·2	244·8	237·6	233·9		240·0	252·5	268·2	285·7	303·6	321 4	337 5	350·6	356·7	354·2
90·6	91·4	91·9	92·3	92·0	91·4	90·8	89·8	88·3		87·2	85·9	84 6	83·5	82 5	81 8	81·5	81 5	81·8	82·5
176·1	188·4	200 9	213·4	226·0	238·6	251·0	264·0	276·7		288·9	301·5	313 8	326·1	338·1	350·3	2·3	14 0	25·9	37·4
123·3	124·1	124·9	125·7	126·0	126·2	126·6	126·4	126·1		125·8	125·1	124 4	123 6	122·9	122·2	121·4	120·8	120·2	119·6
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
283·6	288·7	294·6	300·4	306·8	313·0	319·4	326·3	333·0	**1861**	339·5	346·5	353·2	0·0	6·8	13·4	20·0	26·9	33·5	40·1
184 1	200·7	215·7	226·6	229·9	224·0	218·3	221 9	232·7		247·5	264·9	282 5	299·9	316·4	330·2	338·3	337·1	329·6	329·0
118·3	119 9	121·3	122·4	123·3	124·0	124·2	124·2	123·9		123·2	122·2	121·1	119 8	118·5	117·2	116·0	114·9	114 2	113·8
127·6	138·3	149·5	160·6	172 6	184·6	196·4	208·6	220·9		233·3	245·7	258·1	270·8	283·1	295·6	308·1	320·5	333·1	345·3
135·2	136·2	137·1	138·2	138·7	139·3	139·4	139·7	139·7		139·6	139·1	138·5	138·0	137·2	136·4	135·6	134·9	134 9	133·5
159·4	165 8	172·4	178·7	185·1	191·7	198·2	204·7	211·3	**1862**	217·7	224 5	231·2	238·0	244·6	251·4	258·0	264·8	271·7	278·5
196·3	208·6	214·4	210·7	203·5	204·4	213·6	227·4	243·8		261·4	278·8	295·3	309·9	319·2	320 2	313·2	310·3	317·2	330·3
143·4	145·5	147 4	149·1	150 6	152·0	153·2	154·1	154·8		155 1	155·0	154·7	154 1	153·1	151 8	150 6	149 3	147·9	146·9
211·7	223·4	235·2	247·2	258·8	269 8	280·5	290 8	300·6		309·3	316·2	321·5	323·1	321 3	315·5	310 2	307·5	308 9	312 0
146·8	147 9	149·0	150·0	150·9	151·4	152·2	152·4	152·5		152·8	152·4	152 1	151·8	151·1	150·4	149·6	148·9	148·1	147·3
345·6	342·9	842·4	343·0	344·9	347·5	350 9	354·8	359·1	**1863**	3·9	9·1	14·4	20·0	25·7	31·2	37·3	43·3	49·1	55·1
197 8	196·9	189·4	187·2	194·8	207 5	223·5	240 8	258·2		275 0	289 9	300·6	303 7	297·4	292·5	297·3	308 8	325 1	342·7
167·1	169·2	171·4	173·4	175 5	177·3	179 1	180·8	182·1		183·3	184·2	184 8	185·1	185·1	184·8	184·2	183·1	182 1	180·8
157·6	169·8	182·2	194·8	207 2	219·9	232 3	245 0	257·6		270·6	283·1	295·6	308·9	320·6	333·2	345·7	358 0	10·3	22·5
157·9	159·0	160·4	161·3	162·2	163 0	163·9	164·3	164·7		165·1	165·0	165 0	164 8	164 2	163·6	163·0	162·8	161·4	160·6
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 7	Mr 17	Mr 27	Ap 6
171·5	178·2	184 9	191·5	198·2	205·0	211·7	218·5	226·0	**1864**	232·5	239·5	246·7	253·8	261·1	268·3	275·8	283·2	290·5	298·1
175·3	170·9	176·2	187·9	203·2	220·2	237·5	254·6	269·9		282·1	286·9	282·7	276·3	278·2	288·3	303·2	320·7	339·0	3:7·5
190 1	192·7	194·9	197·0	199·2	201·4	203·5	205·6	207·5		209·3	210·9	212·3	213·5	214·4	215·1	215·4	215·3	215·2	214·6
156·3	154·6	156·3	161·1	168·2	177·0	186 5	196·9	207·8		218·9	230·7	242·3	254·4	266·9	278 7	290·7	303·0	315·1	327·5
168·5	169·7	170·9	172·1	173·1	174·1	175·1	175·7	176·2		176·9	177·0	177·2	177·3	176·9	176·5	176 1	175·3	174·6	173·8
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
52·8	54·4	55·0	54·7	52·0	49·0	46·0	43 2	41 3	**1865**	40·8	41·4	43 0	45·6	48 8	52·7	56·6	61·4	66·3	71·2
157·6	168·3	188·0	199·7	217·1	234·2	250·2	263·0	270·6		268·3	260·9	260·1	268·4	282·2	299·0	317·1	335·4	353·2	9·1
214·6	216·5	218 7	221·0	223·1	225·3	227·6	229·8	232 0		234 3	236·3	238·2	240·1	241 8	243·3	244 6	245 6	246·3	246·9
195·3	207·7	219 9	232·2	244·5	256·9	269 1	281·5	293·5		305·4	317 0	328 9	340·0	351·0	1·1	11·0	19·9	26·9	32·5
178·9	180·1	181·3	182·6	183·7	184·8	185·9	186·6	187·4		188 2	188·3	188·8	189·1	188·9	188·6	188·5	187·9	187·2	186·6

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173 3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360 0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle.
Venus, A.D. 1765—A.D 1999 ;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 15	S 28
1855	Mars ...	74·0	79·6	85·1	90·7	96·5	102·4	108·4	114·3	120·2	126·3	132·5	138·8	145·1	151·5	157·8	164·5	170·9	177·4
	Merc. ...	16·5	35·8	25·5	18·6	16·8	25·2	39·7	56·9	75·3	94·0	112·2	128·7	142·2	148·6	146·4	138·9	136·2	148·1
	Jup. ...	247·0	246·8	246·4	245·7	244·8	243·4	242·3	241·0	239·7	238·3	237·5	236·8	236·4	236·4	236·5	237·2	238·1	239·3
	Ven. ...	34·4	34·8	31·3	22·5	19·5	18·1	20·0	26·1	32·3	40·9	50·2	60·1	70·9	81·7	93·1	104·6	116·5	128·2
	Sat. ...	186·2	185·4	184·6	183·8	183·3	183·8	182·2	182·1	182·1	182·0	182·3	182·8	183·3	184·1	185·0	185·9	187·0	188·1
1866	Mars ...	319·9	327·8	335·5	343·2	350·7	356·3	5·9	13·1	20·4	27·5	34·5	39·1	47·8	54·3	60·4	66·5	72·2	77·6
	Merc. ...	7·5	1·1	357·3	4·0	17·1	34·1	52·4	71·4	90·2	107·3	121·7	130·7	130·2	123·1	121·1	128·9	142·0	158·3
	Jup. ...	277·8	278·8	279·6	280·0	280·1	279·8	279·3	278·3	277·1	275·9	274·7	273·3	272·0	270·9	270·1	269·7	269·5	269·6
	Ven. ...	11·3	24·7	35·7	48·0	60·3	72·5	84·4	96·4	108·2	120·2	132·2	143·7	155·4	166·9	178·3	189·3	200·0	210·4
	Sat. ...	198·6	197·8	197·0	196·3	195·6	194·9	194·3	194·0	193·8	193·4	193·6	193·9	194·2	194·9	195·6	196·3	197·4	198·4
Eng. date	...	Ap 12	Ap 23	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1867	Mars ...	92·2	96·4	100·9	105·9	111·2	116·4	122·0	127·5	135·5	139·5	145·3	151·6	157·9	164·1	170·5	177·1	183·9	190·5
	Merc. ...	336·6	348·1	335·4	11·6	29·7	48·6	67·6	86·1	100·7	111·2	113·4	106·7	103·1	108·7	121·1	137·4	155·0	172·5
	Jup. ...	206·9	208·7	310·5	311·9	313·1	314·0	314·7	314·9	314·9	314·5	313·8	312·9	311·8	310·2	308·9	307·5	306·3	305·4
	Ven. ...	318·3	330·0	342·0	353·8	5·9	17·8	29·8	41·8	53·7	66·0	78·9	90·3	102·4	115·1	127·0	139·4	151·8	164·0
	Sat. ...	210·7	210·0	209·3	208·5	207·7	206·9	206·2	205·8	205·4	205·0	205·0	205·0	205·0	205·5	206·1	206·6	207·5	208·4
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1868	Mars ...	337·0	344·7	352·5	0·1	7·7	15·2	22·7	29·8	37·0	44·1	50·9	57·8	64·6	71·0	77·4	83·6	89·8	95·9
	Merc. ...	333·6	349·0	6·7	25·5	44·5	63·0	78·8	91·1	95·3	90·1	84·5	88·9	100·5	116·0	133·3	151·3	169·0	185·3
	Jup. ...	334·9	337·1	339·4	341·5	343·5	345·4	346·9	348·9	349·6	350·4	351·1	351·2	351·1	350·6	349·8	348·6	347·4	346·1
	Ven. ...	43·5	54·2	64·8	74·7	83·7	91·7	97·7	101·0	101·7	97·3	91·0	85·7	83·8	87·1	91·5	99·1	107·6	117·6
	Sat. ...	222·5	221·8	221·2	220·6	219·8	219·0	218·2	217·6	217·0	216·4	216·2	216·1	216·0	216·3	216·6	217·0	217·8	218·6
1869	Mars ...	115·5	117·5	120·2	123·8	127·8	132·4	137·3	142·6	148·1	153·7	159·5	165·4	171·9	178·0	184·6	191·1	197·8	204·8
	Merc. ...	344·4	2·8	21·8	40·2	57·0	70·2	76·4	73·0	66·3	68·3	79·0	94·3	111·6	129·9	147·8	164·9	179·5	189·5
	Jup. ...	2·7	5·9	7·5	9·9	12·8	14·5	16·7	18·8	20·7	22·5	24·1	25·4	26·5	27·2	27·6	27·7	27·8	26·7
	Ven. ...	352·5	5·0	17·5	29·8	41·9	54·4	66·5	78·8	90·9	103·2	115·4	127·7	139·8	151·8	164·1	176·1	188·2	200·2
	Sat. ...	233·9	233·6	233·3	232·3	231·5	230·7	230·0	229·3	228·6	227·8	227·5	227·1	226·9	227·1	227·3	227·4	228·1	228·7
1870	Mars ...	353·9	0·6	8·3	15·7	23·1	30·4	37·7	44·9	51·8	58·9	65·6	72·3	78·9	85·5	92·0	98·3	104·5	110·6
	Merc. ...	359·0	17·4	34·5	48·7	56·8	55·4	48·2	47·8	57·7	72·4	89·6	107·9	126·2	144·0	159·5	171·3	175·7	170·6
	Jup. ...	30·1	32·4	34·7	37·1	39·5	41·8	44·2	46·6	48·8	51·1	53·2	55·2	56·9	58·7	60·1	61·3	62·2	62·8
	Ven. ...	315·8	323·5	331·8	342·6	353·2	4·1	15·0	26·4	37·9	49·7	61·5	73·3	85·2	96·9	109·3	121·4	133·6	145·9
	Sat. ...	245·2	244·9	244·6	244·2	243·6	242·8	242·0	241·2	240·4	239·7	239·2	238·7	238·2	238·1	238·0	238·0	238·6	239·1
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 23	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1871	Mars ...	148·4	147·1	147·2	148·0	150·3	153·0	156·7	161·1	165·6	170·7	176·2	181·9	187·7	193·9	200·3	207·0	213·7	220·6
	Merc. ...	12·2	27·3	37·4	36·9	29·7	27·9	36·2	50·2	67·4	85·4	104·1	122·3	138·7	152·1	158·1	156·3	148·7	149·2
	Jup. ...	58·0	59·7	61·7	63·8	65·9	68·1	70·5	72·7	75·1	77·5	79·6	81·9	84·3	86·3	88·3	90·2	91·9	93·3
	Ven. ...	29·6	41·6	53·3	65·4	77·1	88·5	99·9	110·9	121·5	131·9	141·5	150·7	158·6	164·5	168·1	168·7	164·4	158·2
	Sat. ...	256·2	256·0	255·8	255·7	255·0	254·4	253·8	253·1	252·3	251·5	250·9	250·2	249·6	249·4	249·2	248·9	249·2	249·6
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1872	Mars ...	6·5	15·8	23·3	30·3	37·6	44·8	51·6	58·7	65·7	72·3	78·9	85·5	92·2	98·7	105·0	111·4	117·6	123·9
	Merc. ...	15·9	18·5	11·9	8·0	14·6	27·8	45·2	62·9	81·9	101·1	117·5	131·7	140·6	140·5	133·4	130·9	138·7	151·8
	Jup. ...	87·0	88·0	89·2	90·7	92·3	94·2	96·0	98·2	100·3	102·5	104·7	107·1	109·3	111·5	113·8	115·9	118·0	120·1
	Ven. ...	334·6	346·9	359·1	11·4	23·5	35·7	48·0	60·2	72·5	84·8	97·0	109·2	121·7	133·8	146·2	158·4	170·9	183·3
	Sat. ...	267·1	267·2	267·3	267·3	266·8	266·3	265·8	265·0	264·2	263·4	262·7	262·0	261·3	261·0	260·6	260·2	260·3	260·4
1873	Mars ...	199·6	196·7	193·0	190·2	187·7	186·8	187·1	188·6	191·1	194·6	198·5	203·1	208·5	213·8	219·9	226·0	232·4	239·2
	Merc. ...	354·9	349·2	353·3	5·8	21·7	39·9	59·0	77·7	95·5	110·8	121·5	123·8	117·4	113·2	118·5	131·1	146·8	164·0
	Jup. ...	118·0	118·0	118·2	118·3	119·7	120·8	122·1	123·8	125·5	127·4	129·4	131·4	133·6	135·8	138·0	140·3	142·5	144·6
	Ven. ...	32·6	32·1	28·2	20·2	16·8	15·9	19·0	24·4	31·9	40·9	50·1	60·5	71·0	82·1	93·4	105·1	116·9	128·8
	Sat. ...	277·9	278·2	278·5	278·7	278·4	278·1	277·8	277·1	276·4	275·1	275·0	274·2	273·4	272·8	272·3	271·7	271·6	271·5
1874	Mars ...	23·4	30·4	37·5	44·5	51·3	58·2	65·0	71·7	78·4	84·9	91·7	98·0	104·5	111·0	117·4	123·7	130·0	136·3
	Merc. ...	342·5	343·7	359·3	17·1	36·0	54·9	73·4	89·6	101·7	106·0	100·7	95·3	99·2	110·5	125·7	143·0	160·7	178·4
	Jup. ...	150·9	149·9	149·1	148·7	148·5	148·7	149·3	150·1	151·1	152·4	154·1	155·8	157·5	159·6	161·6	163·7	165·9	168·1
	Ven. ...	11·9	24·3	36·3	48·6	61·0	73·1	85·1	97·2	108·8	120·7	132·7	144·2	155·9	167·6	178·6	189·6	200·1	210·3
	Sat. ...	288·9	289·3	289·7	290·2	290·0	289·9	289·8	289·2	288·6	288·1	287·3	286·5	285·8	285·1	284·4	283·1	283·4	283·2
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1875	Mars ...	245·0	248·3	250·8	252·3	253·3	252·8	251·0	248·7	246·1	243·8	242·5	241·5	243·9	246·3	249·9	254·0	259·1	264·5
	Merc. ...	337·4	354·6	13·2	32·0	50·6	67·3	80·6	87·3	83·9	77·2	79·9	89·4	103·6	121·4	139·6	157·5	173·8	189·0
	Jup. ...	184·8	183·5	182·2	181·1	180·1	179·3	178·8	178·6	178·7	179·3	180·2	181·1	182·5	184·0	185·7	187·4	189·5	191·6
	Ven. ...	318·8	330·5	342·5	354·5	6·4	18·3	30·4	42·5	54·2	66·7	78·9	90·9	103·1	115·4	127·7	140·1	152·5	164·9
	Sat. ...	299·7	300·3	300·9	301·6	301·7	301·8	301·9	301·5	301·1	300·8	300·1	299·4	298·6	297·8	297·0	296·3	295·8	295·3
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1876	Mars ...	37·9	44·6	51·4	58·1	64·8	71·4	77·9	84·4	90·8	97·5	103·8	110·2	116·6	122·9	129·4	134·6	142·0	148·4
	Merc. ...	350·4	9·3	27·7	45·0	59·3	67·5	66·5	59·2	59·0	69·5	82·5	99·6	117·7	136·1	153·3	169·0	180·7	184·9
	Jup. ...	218·8	217·9	216·7	215·4	214·2	212·9	211·6	210·5	209·8	209·3	209·1	209·3	209·7	210·4	211·6	212·8	214·4	216·0
	Ven. ...	43·8	54·8	65·1	74·6	83·5	91·0	96·8	99·3	98·8	93·8	87·4	82·5	81·8	84·8	91·2	98·8	107·8	117·4
	Sat. ...	310·6	311·4	312·2	313·1	313·5	313·8	314·1	313·9	313·7	313·6	313·0	312·4	311·7	310·9	310·1	309·2	308·6	307·9
1877	Mars ...	273·5	279·4	285·7	291·6	297·2	302·9	307·8	312·5	316·5	319·9	322·5	323·5	323·6	321·9	319·4	317·1	315·2	314·3
	Merc. ...	5·8	22·6	37·7	47·3	48·2	41·2	38·9	46·3	60·6	77·4	95·8	114·2	132·2	148·4	161·8	168·2	165·8	158·4
	Jup. ...	251·3	251·5	251·1	250·6	249·7	248·6	247·3	246·0	244·6	243·4	242·3	241·5	240·9	240·7	240·8	241·3	242·1	243·2
	Ven. ...	353·3	5·8	18·0	30·2	42·8	54·0	67·0	79·4	91·6	103·8	116·0	128·3	140·4	152·4	164·6	176·5	188·6	200·8
	Sat. ...	321·6	322·6	323·6	324·6	325·2	325·8	326·3	326·4	326·5	326·5	326·0	325·5	325·0	324·2	323·4	322·7	321·9	321·2

Mesh.	Vrish.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrisch.	Dhan.	Mak.	Knm.	Min.	Aśvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·6	120·0

V-B.—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja. 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
184·0	190·7	197·6	204·5	211·5	218.5	225·5	232·7	240·1	**1866**	247·5	254·7	262·0	269·7	277·3	285·0	292·7	300·3	308·3	316·0
162·7	179·0	196·6	213·6	230·1	244·2	253·3	253·8	246·7		243·3	249·0	261·8	277·8	295·4	313·6	331·4	347·8	0·9	7·9
240·7	242·3	244·1	246·1	248·1	250·3	252·5	254·8	257·1		259·4	261·6	264·0	266·2	268·3	270·4	272·4	274·2	275·8	277·2
140·4	152·4	164·6	176·8	189·1	201·6	214·0	226·7	239·1		252·1	264·3	277·0	289·7	302·1	314·8	327·4	339·8	352·3	4·7
189·3	190·5	191·7	192·5	194·0	195·1	196·3	197·1	198·0		198·9	199·4	199·9	200·5	200·5	200·5	200·5	199·9	199·4	198·9
82·6	87·2	91·2	94·8	97·5	99·2	99·9	99·1	97·3	**1867**	94·3	90·8	86·7	83·8	81·6	81·3	82·1	84·0	86·8	90·2
175·7	193·2	210·1	224·8	235·7	238·5	233·4	227·5	230·9		241·8	257·0	274·1	291·9	309·7	326·5	340·1	348·6	347·8	340·5
270·0	270·9	272·1	273·3	275·0	276·7	278·7	280·8	283·0		285·2	287·5	289·9	292·2	294·8	297·0	299·4	301·6	303·8	305·7
220·0	228·6	235·8	242·7	244·2	243·2	238·5	232·2	228·7		229·2	232·9	239·8	248·2	257·3	267·6	278·1	289·1	300·6	312·0
199·4	200·6	201·8	202·9	204·1	205·3	206·4	207·4	208·4		209·4	210·1	210·7	211·5	211·7	211·9	212·0	211·7	211·4	211·0
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 7	Mr 17	Mr 27	Ap 6
197·2	204·1	211·1	218·3	225·5	232·6	240·1	247·5	255·0	**1868**	262·5	270·1	277·9	285·8	293·4	301·5	309·1	317·0	325·0	332·9
189·9	205·4	218·1	224·5	219·6	211·4	213·3	222·6	236·8		253·2	270·8	288·6	305·3	320·0	329·5	330·6	323·6	320·4	327·2
304·7	304·3	304·3	304·7	305·4	306·3	307·5	309·1	310·8		312·7	314·8	317·0	319·2	321·7	324·0	326·4	328·8	331·2	333·6
176·7	189·0	201·7	214·0	226·7	239·2	251·8	264·4	277·1		289·5	301·9	314·3	326·7	339·7	350·9	2·7	14·6	26·3	37·8
209·3	210·5	211·6	212·8	214·0	215·2	216·3	217·4	218·5		219·5	220·4	221·2	222·0	222·4	222·8	223·1	223·2	223·3	222·7
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	7a 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
101·3	106·9	112·1	116·8	121·5	125·4	129·1	131·6	133·3	**1869**	133·9	133·4	131·8	128·5	125·0	120·8	117·6	115·4	114·5	114·6
198·9	206·8	206·0	198·4	196·4	203·9	216·8	232·8	249·9		267·4	284·3	299·4	310·5	313·4	307·6	302·3	307·3	319·0	335·0
344·7	343·4	342·2	341·3	340·8	340·5	340·6	341·1	341·9		342·9	344·4	346·0	347·7	349·7	351·8	354·0	356·4	358·8	1·1
127·5	138·6	149·6	161·3	172·9	185·1	197·1	209·8	221·7		233·6	246·2	258·7	271·3	283·8	296·4	308·6	321·2	333·5	346·0
219·4	220·5	221·5	222·5	223·7	225·0	226·1	227·2	228·3		229·5	230·4	231·3	232·2	232·8	233·3	233·9	233·9	234·0	234·0
211·6	218·4	225·6	232·9	240·3	247·8	255·3	263·0	270·6	**1870**	278·4	286·3	294·0	301·9	309·9	317·7	325·6	333·5	341·3	349·2
191·4	184·6	180·2	185·3	197·1	212·3	229·0	246·7	263·9		279·3	291·4	296·6	292·6	285·9	287·7	298·3	313·2	330·7	349·1
25·8	24·6	23·6	22·0	20·6	19·5	18·3	17·5	17·0		16·9	17·2	17·8	18·6	19·8	21·3	22·0	24·8	26·8	28·9
212·1	224·0	235·7	247·6	259·1	270·0	280·8	290·7	300·5		308·7	315·3	319·9	320·8	317·7	311·8	306·6	304·9	307·0	311·8
229·8	230·3	231·3	232·3	233·5	234·7	235·8	236·9	238·1		239·2	240·2	241·2	242·3	243·0	243·1	244·4	244·7	245·0	245·2
116·6	122·4	128·2	133·6	139·0	144·0	148·7	153.2	157·2	**1871**	160·6	163·4	165·3	166·1	165·4	163·5	160·5	156·8	152·9	149·5
164·3	167·1	177·4	192·2	208·8	226·2	243·4	259·3	272·4		279·6	277·8	270·6	269·4	278·2	292·0	308·8	327·0	344·7	3·5
62·9	63·0	62·5	61·7	60·6	59·5	58·1	56·7	55·5		54·3	53·3	52·7	52·3	52·3	52·7	53·4	54·8	55·6	57·1
158·3	170·5	182·9	195·5	207·8	220·5	233·0	245·7	258·2		271·0	283·7	296·2	308·9	321·2	334·0	346·3	358·7	11·0	23·0
239·5	240·4	241·3	242·2	243·3	244·4	245·5	246·7	247·9		249·0	250·1	251·2	252·3	253·2	254·1	254·9	255·3	255·7	256·1
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 7	Mr 17	Mr 27	Ap 6
227·4	234·4	241·7	249·2	256·5	264·8	271·9	279·3	287·2	**1872**	295·0	302·8	310·7	318·4	326·4	334·0	341·7	349·4	357·0	8·8
157·9	172·0	188·3	205·7	223·1	239·4	253·3	262·6	262·8		255·6	252·3	258·7	271·3	287·2	305·0	323·3	341·2	357·9	11·6
94·6	95·5	96·3	96·6	96·7	96·3	95·7	94·8	93·6		92·4	91·1	89·8	88·5	87·4	86·6	86·1	85·9	86·1	86·6
153·5	152·4	154·6	160·3	167·8	176·8	186·5	197·0	208·1		219·3	231·0	242·7	254·8	267·3	279·2	291·2	303·5	315·7	328·1
249·9	250·6	251·3	252·1	253·1	254·1	255·2	256·4	257·6		258·8	260·0	261·3	262·3	263·2	264·1	265·1	265·7	266·3	266·9
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
129·9	136·1	141·9	147·9	153·6	159·4	164·7	170·1	175·5	**1873**	180·4	185·2	189·6	193·6	197·0	199·7	201·9	202·6	202·6	201·0
167·9	184·6	202·6	219·3	234·2	244·8	247·8	242·0	236·3		240·2	251·3	267·3	283·6	301·7	319·7	336·0	350·4	359·1	358·5
121·8	123·5	125·0	126·3	127·3	128·0	128·5	128·6	128·3		127·9	127·0	125·9	124·7	123·4	122·0	120·7	119·7	118·9	118·2
195·8	208·2	220·2	232·7	245·0	257·0	269·7	281·8	293·9		305·7	317·4	329·2	340·2	351·2	1·3	10·8	19·5	26·3	31·1
260·5	261·0	261·6	262·2	263·2	264·2	265·1	266·3	267·5		268·6	269·7	271·0	272·1	273·2	274·3	275·4	276·2	276·9	277·6
245·0	252·8	260·0	267·3	274·8	282·2	289·9	297·5	305·1	**1874**	312·7	320·5	327·8	335·5	342·9	350·3	357·8	5·1	12·3	19·6
181·8	199·0	214·5	226·7	232·2	228·8	221·5	222·8	231·9		246·1	262·6	280·5	298·0	315·0	329·5	339·5	340·9	334·2	330·8
146·8	148·8	150·8	152·6	154·2	155·6	156·9	158·0	158·6		159·2	159·2	159·0	158·5	157·5	156·5	155·3	154·1	152·7	151·4
140·7	152·9	164·9	177·3	189·6	202·6	214·5	227·1	239·5		252·2	264·8	277·3	290·2	302·8	314·8	327·3	339·9	352·4	5·4
271·4	271·8	272·2	272·7	273·6	274·5	275·3	276·1	277·1		277·8	279·0	280·2	281·3	282·4	283·6	284·7	285·8	286·8	287·8
143·6	148·7	155·0	161·0	167·0	173·2	179·3	185·2	191·1	**1875**	197·1	202·9	208·4	214·1	219·6	224·8	229·9	234·6	239·1	243·1
194·7	208·2	216·1	214·8	207·4	204·8	212·9	226·0	242·0		259·2	276·8	293·8	309·2	320·3	323·7	318·0	312·8	316·7	328·9
170·2	172·4	174·6	176·7	178·8	180·7	182·6	184·2	185·7		187·0	188·0	188·7	188·2	189·3	189·1	188·6	187·8	186·7	185·5
219·6	228·2	234·9	240·2	241·6	239·8	233·4	228·2	225·9		227·5	234·2	239·2	248·2	257·4	267·9	278·6	289·7	301·2	312·5
282·9	283·1	283·3	283·6	284·3	285·9	285·8	286·8	287·9		288·9	290·1	291·3	292·6	293·8	295·0	296·1	297·1	298·2	299·2
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 7	Mr 17	Mr 27	Ap 6
270·2	276·5	282·0	289·6	296·4	303·2	310·2	317·2	324·4	**1876**	331·5	336·7	345·8	352·6	359·8	6·9	13·7	20·7	27·6	34·5
198·9	200·4	193·6	189·3	194·5	206·3	221·3	238·5	255·6		273·2	288·7	301·0	306·4	302·1	295·4	297·7	308·1	323·2	340·7
193·7	195·9	198·1	200·2	202·4	204·7	206·8	208·9	210·8		212·7	214·8	215·9	217·3	218·3	219·1	219·6	219·7	219·7	219·1
177·4	187·7	202·2	214·7	227·4	240·0	252·3	265·2	277·7		289·2	302·6	315·0	327·2	339·4	351·6	3·4	15·1	26·8	37·9
294·8	294·8	294·9	294·9	295·4	295·9	296·5	297·5	298·5		299·4	300·6	301·8	302·9	304·1	305·3	306·6	307·8	309·0	310·1
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
154·7	161·2	167·5	173·7	180·3	186·6	192·9	199·3	205·7	**1877**	212·1	218·7	225·0	231·5	237·9	244·4	250·8	257·3	263·6	270·0
179·9	173·6	176·3	186·9	201·4	218·1	235·3	252·5	268·6		281·7	289·1	287·3	279·9	279·1	287·5	301·6	318·6	336·9	355·4
218·0	219·9	222·1	224·2	226·4	228·6	230·9	233·2	235·3		237·5	239·7	241·7	243·6	245·5	247·1	248·4	249·6	250·4	251·2
128·0	138·9	150·1	161·8	173·5	183·5	197·5	210·0	222·4		234·5	246·0	259·4	272·0	284·5	297·1	309·5	321·9	334·3	346·7
307·3	307·1	306·9	306·7	307·1	307·4	307·8	308·6	309·4		310·3	311·4	312·5	313·6	314·8	316·1	317·3	318·6	319·8	321·0
314·7	316·3	319·4	323·7	327·0	331·8	336·6	342·3	347·6	**1878**	353·7	359·6	5·6	11·8	17·9	24·1	30·4	36·6	43·1	49·4
158·3	167·0	181·5	197·6	214·9	232·2	248·5	262·6	271·7		272·1	265·0	261·8	267·7	281·0	297·0	315·0	333·3	351·4	8·1
244·5	246·0	247·7	249·7	251·6	253·7	256·0	258·2	260·5		262·9	265·1	267·4	269·7	272·0	274·0	276·1	278·0	279·7	281·2
212·6	224·4	236·2	248·0	259·3	270·2	280·3	290·7	300·3		308·0	314·4	317·7	317·6	313·7	307·9	305·2	302·1	305·6	310·9
320·4	320·4	319·7	319·2	319·3	319·4	319·6	320·2	320·8		321·5	322·6	323·7	324·7	325·9	327·1	328·3	329·6	330·9	332·1

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Srav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	147·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	348·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle.
Venus, A.D. 1765—A.D. 1999 ;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1878 Mars	...	52·7	59·1	65·3	71·7	77·8	84·3	90·5	96·7	103·2	109·4	115·7	122·1	128·3	135·3	141·2	147·6	153·9	160·2
Merc.	...	15·6	26·9	28·6	22·5	19·2	25·2	38·3	54·8	73·0	91·8	110·2	127·3	141·8	150·1	150·2	142·6	140·7	148·0
Jup.	...	281·9	283·1	284·0	284·6	284·8	284·7	284·2	283·5	282·5	281·2	280·0	278·6	277·3	276·1	275·2	274·5	274·1	274·2
Ven.	...	315·2	323·3	332·6	342·1	353·5	4·3	15·3	26·7	38·2	50·4	62·0	73·6	85·6	97·6	109·8	122·0	134·1	146·4
Sat.	...	333·0	334·1	335·2	336·3	337·1	337·9	338·7	339·0	339·3	339·5	339·3	339·1	338·8	338·1	337·6	336·7	335·9	335·1
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	J 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1879 Mars	...	294·4	301·7	309·0	316·2	323·3	330·4	337·5	344·3	351·2	357·5	3·7	9·6	15·0	21·1	24·3	28·0	30·8	32·3
Merc.	...	10·8	5·8	0·2	4·3	16·3	32·1	50·4	69·1	88·2	105·0	121·1	132·0	133·9	127·4	123·2	128·7	140·9	156·4
Jup.	...	310·7	312·7	314·5	316·1	317·5	318·5	319·4	319·9	320·0	319·7	319·1	318·2	317·2	315·9	314·5	313·1	311·8	310·7
Ven.	...	30·1	42·1	53·9	65·9	77·4	89·0	100·2	111·4	121·9	132·1	141·7	150·4	157·7	163·4	165·6	165·4	160·7	154·9
Sat.	...	344·3	345·5	346·7	348·0	349·0	350·0	351·6	351·6	352·6	352·6	352·6	352·6	352·6	352·1	351·6	351·0	350·2	349·4
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1880 Mars	...	67·8	73·4	79·2	85·1	91·2	97·2	103·3	109·4	115·5	121·4	127·8	134·0	140·4	146·6	153·1	159·6	165·9	172·6
Merc.	...	342·0	343·5	354·5	9·7	27·5	46·3	65·4	83·6	99·7	112·0	116·6	111·5	105·5	108·7	120·3	135·5	152·5	170·2
Jup.	...	338·7	341·0	343·3	345·5	347·6	349·5	351·2	352·8	354·1	355·1	355·8	356·1	356·3	355·9	355·2	354·3	353·1	351·7
Ven.	...	334·7	346·7	359·7	12·0	24·1	36·5	48·6	61·0	73·1	85·4	97·7	109·8	122·3	134·4	146·7	159·0	171·5	183·9
Sat.	...	356·0	357·3	358·6	359·9	1·0	2·2	3·3	4·1	4·9	5·7	5·9	6·2	6·5	6·2	5·9	5·5	4·8	4·1
1881 Mars	...	313·1	320·6	328·4	336·1	343·0	351·2	358·6	6·0	13·1	20·3	26·9	33·9	40·2	46·5	52·7	58·2	63·5	68·4
Merc.	...	333·0	347·3	4·8	23·5	42·5	61·1	77·9	91·3	97·9	95·0	88·1	89·2	99·6	114·3	131·3	149·1	166·8	183·7
Jup.	...	6·5	8·9	11·3	13·6	16·0	18·4	20·4	22·7	24·7	26·6	28·3	29·8	30·9	31·8	32·4	32·5	32·4	32·0
Ven.	...	30·6	28·1	24·0	17·5	13·8	14·1	18·2	23·8	31·7	40·9	50·4	60·7	71·2	82·8	94·1	105·6	117·5	129·3
Sat.	...	7·9	9·2	10·5	11·8	13·0	14·3	15·6	16·6	17·6	18·6	19·1	19·7	20·3	20·3	20·2	20·1	19·6	19·1
1882 Mars	...	84·2	89·6	94·3	99·8	105·0	110·6	116·5	122·3	128·3	134·3	140·2	146·7	152·7	159·1	165·5	172·2	178·7	185·4
Merc.	...	342·4	0·5	19·4	38·2	55·5	70·0	78·1	77·4	70·2	69·5	79·1	92·7	109·5	126·4	145·9	163·0	178·6	190·1
Jup.	...	33·8	36·1	38·4	40·7	43·1	45·5	47·9	50·2	52·5	54·8	56·9	59·0	60·9	62·6	64·2	65·5	66·5	67·3
Ven.	...	12·4	24·9	37·0	49·5	63·2	73·6	85·7	97·6	109·9	121·3	133·3	144·6	156·3	168·0	178·8	189·8	200·5	210·1
Sat.	...	20·2	21·5	22·8	24·2	25·5	26·8	28·1	29·3	30·5	31·6	32·3	33·1	33·9	34·1	34·4	34·7	34·4	34·0
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1883 Mars	...	330·3	338·2	346·0	353·7	1·2	8·8	16·1	23·5	30·8	37·9	44·8	51·7	58·2	64·9	71·2	77·4	83·4	89·2
Merc.	...	356·8	15·3	32·9	48·1	58·1	59·5	52·6	49·8	57·3	71·0	87·7	105·6	124·0	141·9	158·0	171·2	177·9	175·1
Jup.	...	62·9	63·5	65·4	67·4	69·5	71·6	74·0	76·2	78·6	80·9	83·2	85·5	87·6	89·9	91·9	93·8	95·6	97·1
Ven.	...	319·1	331·0	343·0	355·0	6·9	18·8	30·8	43·0	55·1	67·2	80·1	91·5	103·6	115·9	128·2	140·6	153·1	165·4
Sat.	...	32·5	33·8	35·1	36·5	37·8	39·1	40·5	41·8	43·1	44·3	45·4	46·4	47·6	48·0	48·4	48·9	48·9	48·8
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1884 Mars	...	106·5	108·3	112·1	116·3	120·9	125·8	131·0	136·5	142·0	147·9	153·9	159·8	166·2	172·4	179·0	185·4	192·1	199·0
Merc.	...	10·7	26·4	37·7	40·6	34·6	30·3	35·9	49·0	65·2	83·3	101·0	120·2	137·2	151·5	160·1	160·2	152·6	150·4
Jup.	...	91·2	92·0	93·1	94·4	96·0	97·8	99·7	101·7	103·8	106·0	108·2	110·4	112·7	114·9	117·1	119·3	121·4	123·5
Ven.	...	44·2	55·1	65·1	74·6	83·4	90·2	95·1	97·2	95·5	89·9	84·2	79·6	81·6	83·8	90·6	98·4	107·5	117·9
Sat.	...	45·4	46·7	48·0	49·2	50·5	51·8	53·1	54·4	55·7	57·1	58·3	59·4	60·6	61·4	62·2	63·0	63·2	63·5
1885 Mars	...	346·8	354·5	2·2	9·8	17·3	24·6	31·9	39·2	46·2	53·1	60·1	66·7	73·5	79·9	86·5	92·7	98·9	105·0
Merc.	...	16·6	21·9	16·9	11·1	14·5	26·7	42·5	60·6	79·5	98·0	115·7	131·0	141·9	144·0	137·8	133·0	138·0	150·3
Jup.	...	122·4	122·2	122·3	122·7	123·4	124·5	125·8	127·2	128·9	130·7	132·7	134·7	136·9	139·1	141·2	143·5	145·7	147·9
Ven.	...	353·8	6·3	18·6	30·9	43·2	55·7	67·6	79·9	92·1	104·3	116·7	128·8	140·9	152·9	165·0	177·0	189·1	201·2
Sat.	...	58·4	59·5	60·7	61·8	63·1	64·4	65·7	67·0	68·4	69·8	71·1	72·3	73·5	74·5	75·5	76·5	77·0	77·5
1886 Mars	...	129·9	134·1	135·2	137·5	140·4	146·2	148·6	153·1	158·2	163·4	169·2	175·0	181·1	187·4	193·8	200·4	207·1	213·9
Merc.	...	359·4	352·4	354·2	4·9	20·1	37·9	56·1	79·0	92·9	100·9	121·3	116·4	121·9	115·8	119·0	130·1	145·1	162·2
Jup.	...	155·5	154·5	153·6	152·9	152·8	152·9	153·1	153·3	154·8	156·0	157·4	159·0	161·0	162·0	164·8	166·9	169·1	171·2
Ven.	...	314·8	328·1	332·6	343·1	354·1	4·9	15·8	27·2	38·9	50·7	62·4	74·3	86·2	98·1	110·4	122·6	134·8	147·1
Sat.	...	71·7	72·6	73·5	74·5	75·7	76·9	78·1	79·5	80·9	82·2	83·5	84·8	86·2	87·3	88·4	89·5	90·3	91·1
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1887 Mars	...	2·4	10·2	17·4	24·8	32·0	39·1	46·3	53·4	60·3	67·2	73·8	80·5	87·0	93·6	100·0	106·4	112·6	118·8
Merc.	...	334·6	343·2	357·6	15·3	33·9	53·0	71·5	88·3	101·6	108·5	105·0	98·8	109·6	109·6	124·1	141·0	158·8	176·4
Jup.	...	189·6	188·2	186·8	185·8	184·6	183·7	183·0	182·9	182·8	183·2	183·9	184·8	186·0	187·0	189·1	190·9	192·8	194·8
Ven.	...	2·8	42·7	54·8	66·6	77·7	89·5	100·7	111·7	122·2	132·4	141·7	150·2	157·0	161·9	164·3	162·5	156·8	150·6
Sat.	...	85·2	86·0	86·7	87·3	88·4	89·5	90·6	91·7	93·3	94·4	95·7	97·0	98·4	99·7	101·0	102·2	103·2	104·2
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1888 Mars	...	168·1	174·7	172·0	169·9	168·6	170·6	172·8	175·8	179·4	183·7	189·6	193·7	199·5	205·6	211·5	217·1	224·4	231·1
Merc.	...	335·9	352·6	10·7	29·7	44·5	55·6	80·4	84·3	88·6	81·3	80·1	88·6	102·5	119·5	137·3	155·2	172·4	187·8
Jup.	...	223·4	222·5	221·5	220·2	219·0	217·6	216·4	215·2	214·3	213·7	213·4	213·4	213·8	214·4	215·3	216·5	218·0	219·7
Ven.	...	334·7	34·0	0·2	12·7	24·7	37·0	49·3	61·5	73·6	86·1	98·2	110·5	122·9	134·9	147·4	159·5	172·0	184·7
Sat.	...	99·0	99·4	99·8	100·3	101·2	102·1	102·9	104·1	105·3	106·5	107·9	109·2	110·5	111·8	113·0	114·3	115·4	116·5
1889 Mars	...	17·5	24·7	31·8	38·9	45·9	53·0	59·7	66·5	73·4	80·1	86·9	93·2	99·8	106·1	113·2	118·9	125·1	131·5
Merc.	...	348·3	7·0	25·8	44·4	58·9	69·3	70·7	64·0	60·7	67·8	81·1	97·6	115·5	133·8	151·6	168·9	180·6	187·1
Jup.	...	255·7	255·9	255·9	255·4	254·7	253·7	252·5	251·1	249·7	248·5	247·3	246·3	245·7	245·3	245·2	245·6	246·2	247·1
Ven.	...	25·2	23·5	19·8	14·4	1·2	12·1	16·8	22·8	31·5	40·7	52·0	61·0	71·9	82·9	94·5	96·0	117·9	129·9
Sat.	...	112·9	113·0	113·1	113·3	114·1	114·8	115·4	116·5	117·6	118·6	119·9	121·2	122·4	123·7	125·0	126·3	127·5	128·7
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1890 Mars	...	230·0	230·8	230·6	229·4	226·9	224·3	221·4	219·5	218·5	218·7	220·3	223·0	226·5	230·9	235·7	241·2	247·1	253·1
Merc.	...	3·0	21·0	36·8	48·4	51·9	45·8	41·4	43·7	59·1	75·3	93·3	111·9	130·0	146·9	161·2	169·9	169·7	162·7
Jup.	...	285·9	287·3	288·3	289·1	289·4	289·6	289·3	288·6	287·8	286·7	285·3	284·0	282·6	281·4	280·3	279·5	279·0	278·7
Ven.	...	13·2	25·5	37·5	50·0	62·1	74·3	86·2	98·3	110·3	121·3	133·5	145·1	156·6	167·9	179·3	189·9	200·2	209·8
Sat.	...	125·8	126·0	126·4	126·3	126·8	127·2	127·7	128·6	129·5	130·3	131·5	132·7	134·0	135·3	136·6	137·8	139·0	140·2

Mesh.	Vrish.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asva.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999 ; Mercury, A.D. 1645—A.D. 1999 ; Jupiter, A.D. 1656—A.D. 1999 ; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	An 6
166·8	173·4	179·8	186·5	193·0	199·9	206·4	213·3	219·9	**1879**	226·9	233·8	240·7	247·7	254·8	261·7	279 0	276 1	283·4	290·8
161·1	177·1	194·3	211·7	228·3	243·1	254·0	256·8	250·8		245·6	249·6	260·7	275·8	293·1	311·3	329·3	346·2	0·6	9·6
274·5	275·1	276·2	277·4	278·9	280·7	282·5	284·5	286·6		288·9	291·3	293·5	295 8	298·3	300·6	303·0	305·3	307·6	309·7
158·7	171·0	183·4	196·4	208·5	221·2	232·7	246·3	259·0		271·8	284 3	296·9	309·6	321·8	334·5	347·0	359·4	11·5	23·5
334·3	333·7	333·1	332·5	332·4	332·3	332·2	332·7	333·2		333·7	334·5	335·4	336·2	337·4	338·6	339·8	341·1	342·4	343·7
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 7	Mr 17	Mr 27	Ap 6
32·5	31·5	29·3	26·6	24·1	22·3	20·8	20·7	22·1	**1880**	24·2	26·9	30·3	34·3	38·9	43·6	48·6	53·9	59·2	64·7
172·7	190·3	206·4	223·6	236·0	241·0	238·0	230·6	231·2		241·1	255·3	271·9	289·6	307·6	324·8	339·6	351·0	351·6	345·0
309·9	309·4	309·2	309·4	309·9	310·7	311·8	313·2	314·8		316·6	318·6	320·8	323·1	325·4	327·7	330·1	332·5	334·9	337·4
150·2	150·3	153·5	159·6	167·5	176·9	186·4	197·2	208·2		219·7	231·5	243·4	255·4	267·7	279·9	291 9	304·1	316·4	328·8
348·6	347·8	347·1	346·5	345·9	345·5	345·2	345·4	345·7		346·0	346·7	347·4	348·1	349·2	350·3	351·4	352·7	354·0	355·3
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
179·2	186·0	192·6	199·4	206·2	213·2	220·0	227·1	234·2	**1881**	241 4	248·9	256·2	263·5	270·9	278·6	286·2	293·8	301·4	309·2
187·8	204·0	217·4	224·9	224·0	216 3	214·4	221·5	235·2		251·3	268·5	286·3	303·6	318·8	330·2	333·9	328·3	322·9	327·0
350·4	349·0	347·8	346·7	346·0	345·5	345·5	345·8	346·5		347·4	348·6	350·1	351·8	353·7	355·8	358·2	0·3	2·5	4·8
196·2	208·6	221·0	233·3	246·6	257·8	270·1	282·4	294·5		306·3	317·8	329·4	340·4	351·2	1·2	10·6	19·0	25·4	29·6
8·4	2·6	1·8	0·9	0·3	359·7	359·2	359·1	359·0		359·0	359·5	0·1	0·6	1·5	2·4	3·4	4·6	5·8	7·1
73·0	76·9	80·2	82·5	83·8	84·0	82·8	80·3	76·8	**1882**	73·2	70·2	67·9	66·9	67·4	68·8	71·3	74·4	78·2	82·2
198·3	207·9	209·5	202·1	198·2	203·1	215·4	230·9	247·9		265·2	282·6	298·3	310·6	316·2	312·5	305·9	307·3	318·3	333·3
31·2	30·1	28·9	27·6	26·2	24·9	23·7	22·8	22·2		21·9	21·9	22·4	23·1	24·1	25·5	27·0	28·8	30·7	32·8
141·5	153·6	165·6	178·0	190·3	202·8	215·2	227·8	240·4		252·9	265·5	278·3	290·9	303·5	316·0	328·6	341·0	353·1	6·0
18·5	17·7	16·9	16·0	15·3	14·6	13·8	13·4	13·1		12·8	13·0	13·2	13·5	14·4	15·2	15·9	17 0	18·1	19·3
192·2	199·0	205·9	212·9	219·9	227·1	234·3	241·6	249·0	**1883**	256·5	264·2	271·7	279·4	287·2	294·9	302·8	310·6	318·7	326·3
194·1	189·1	182·9	185·5	196·3	210·8	227·1	244·7	261·8		277·9	291·2	298·5	296·8	289·4	288·5	297·6	311·6	328·6	347·1
67·7	67·7	67·4	66·9	66·0	64·8	63·5	62·2	60·8		59·6	58·5	57·7	57·2	57·0	57 2	57·7	58·6	59·7	61·0
219·7	228·0	234·0	239·3	238·9	235·6	229·1	224·2	223·4		225·5	231·4	238·8	247·7	257·3	267·7	278·7	290·0	301·3	313·3
33·6	32·9	32·3	31·5	30·6	29·9	28·9	28·4	27·8		27·3	27·2	27·2	27·2	27·7	28·3	28·9	29·9	30·9	31·9
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 7	Mr 17	Mr 27	Ap 6
94·8	100·0	104·8	109·3	113·1	116·4	119·0	120·4	121·1	**1884**	120·6	118 5	115·6	111·8	107·9	104·8	102·4	101·9	102·4	104·3
167·8	167·1	176·8	190·5	206·7	224·1	241·2	257·8	271·7		280·8	281·7	274 2	271·2	277·6	290·6	306·8	324·7	343·3	1·3
98·3	99·6	100·5	100·9	101·1	101·1	100·5	99·8	98·8		97·5	96·1	94·8	93·5	92·4	91·5	90·8	90·5	90·4	90·9
177·9	190·4	202·8	215·2	227·9	240·5	253·0	265·7	278·2		290·7	303·1	315·4	327·7	339·7	351·9	3·7	15·6	27·3	38·3
48·7	48·1	47·5	47·0	46·2	45·4	44·5	43·8	43·1		42·3	42·0	41·7	41·4	41·7	42·0	42·2	43·0	43·8	44·7
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
205·9	212·8	219·8	226·9	234·4	241·8	249·2	256·3	264·4	**1885**	272·2	279·7	287·7	295·5	303·4	311·3	319·1	326·1	334·9	342·7
157·4	170·5	186·6	203·7	221·1	237·5	252·3	263·1	266·0		260·2	254·7	258·5	270·1	285·5	302·8	321·0	339·1	356·4	11·0
125·4	127·1	128·7	130·0	131·2	132·0	132·7	133·0	132·7		132·4	131·6	130·7	129·4	128·2	126·9	125·6	124·4	123·4	122·6
128·2	139·6	150·6	162·2	173·9	186·1	198·1	209·7	222·7		235·0	247·5	259·9	272·5	285·0	297·6	309·8	322·4	334·8	347·2
63·7	63·4	63·1	63·5	61·9	61·2	60·4	59·6	58·8		57·9	57·4	56·8	56·2	56·2	56·2	56·2	56·8	57·4	57·9
110·8	116·6	122·1	127·4	132·5	137·3	141·7	145·3	148·7	**1886**	151·0	152·7	153·2	152·4	150·0	146·8	143·0	139·2	136·2	134·5
165·8	182·9	200·4	217·3	232·7	244·9	250·2	246·6	239·4		240·5	250·5	264·9	281·4	299·3	317·4	334·4	349·7	0·4	2·5
150·0	152·0	154·0	155·9	157·7	159·2	160·6	161·7	162·6		163·1	163·4	163·3	162·8	162 1	161·2	160·0	158·7	157·5	156·1
213·0	224·9	236·5	248·1	259·7	270·3	280·8	290·6	299·5		307 0	312·9	315·9	316·8	309·6	303·1	299·6	300·2	303·9	310·0
78·0	77·9	77·8	77·8	77·2	76·6	76·1	75·2	74·3		73·5	72·8	72·1	71·3	71·0	70·7	70·4	70·8	71·1	71·4
220·9	228·0	235·2	242·5	249·1	257·5	265·1	272·9	280·6	**1887**	288·3	296·2	304·1	312·0	319·7	327·6	335·5	343·6	350·8	358·5
178·9	197·0	213·1	226·3	234·1	233·0	225·8	223·1	230·5		245·5	260·6	278·2	296·0	313·3	328·7	340·1	344·4	338·9	333·3
173·4	175·6	177·8	179·9	182·0	184·0	185·9	187·7	189·2		190·5	191·7	192·6	193·1	193·4	193·4	192·9	192·3	191·3	190·1
159·4	171·7	184·1	196·7	209·3	221·8	234·3	247·1	259·8		272·5	285·0	297·6	310·2	322·5	335·2	347·7	0·0	12·5	24·1
91·8	92·0	92·2	92·4	92·1	91·8	91·4	90·6	89·8		89·1	88·3	87·5	86·6	86·1	85·6	85·0	85·0	85·0	85·0
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr. 7	Mr 17	Mr 27	Ap 6
124·9	130·8	136·6	142·3	148·0	153·6	158·9	163·8	168·7	**1888**	173·2	177·2	180·9	183·8	186·0	187·4	187·3	185·9	182·9	179·6
193·2	207·5	217·2	218·4	211·5	207·1	212·6	224·7	240·1		257·3	274 8	292·2	307·9	320·5	326·4	322·5	316·0	317·6	328·1
196·9	199·1	201·3	203·5	205·7	207·9	210·1	212·2	214·1		216·1	217 9	219·5	221·0	222·1	223 0	223·7	224·0	224·1	223·6
147·7	148·4	152·4	158·9	167·4	176·6	186·8	197·5	208·7		220·1	232·0	243·9	256·0	268·2	280·5	292·6	304·7	317·0	329·4
105·1	105·5	106·0	106·4	106·4	106·3	106·2	105·6	105·0		104·3	103·5	102·7	101·8	101·1	100·4	99·7	99·5	99·2	98·9
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
238·3	245·3	252·5	259·8	267·3	274·9	282·4	290·1	297·1	**1889**	305·5	313·3	321·0	328·7	336·2	344·0	351·4	358·9	6·3	13·7
199·3	208·3	198·1	192·1	194·6	205·1	219·7	236·4	253·9		271·2	287·4	300·8	308·2	306·7	299·4	298·7	307·1	321·6	338·6
221·4	223·4	225·5	227·5	229·9	232·0	234·3	236·5	238·8		241·0	243·2	245 3	247·3	249·1	250·9	252·3	253·6	254·6	255·4
196·7	209·1	221·5	233·8	245·9	258·3	270·5	282·7	294·8		306·5	318·0	329·7	340·4	351·3	1·0	10·3	18·3	24·5	27·8
117·6	118·4	119·1	119·8	119·9	120·1	120·3	119·0	119·5		119·1	118·4	117·7	116·9	116·1	115·3	114·4	113·9	113·5	112·9
137·5	143·7	149·8	155·9	161·9	167·7	173·7	179·4	185·2	**1890**	190·8	196·2	201·4	206·6	211·6	215·9	210·1	223·9	226·8	229·1
185·3	177 0	176·8	186·0	199·7	216·0	233·3	250·7	267·2		281·2	290·6	291·0	284·1	279·9	287·4	300·3	306·6	334·6	353·3
248·3	249·8	251·4	253·2	255·2	257·3	259·4	261·8	264·0		266·3	268·6	271·0	273·2	275·5	277·7	279·8	281·7	283·7	285·2
142·1	154·0	166·2	178·6	190·9	203·4	215·8	228·5	241·0		253·7	266·3	278·9	291·5	304·1	316·7	329·2	341·7	354·2	6·6
129·8	130·7	131·6	132·5	133·0	133·4	133·8	133·7	133·6		133·4	132·7	132·0	131·4	130·6	129·8	129·0	128·3	127·6	127·0
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
259·7	266·2	273·1	280·1	287·2	294·5	301·8	309·3	316·5	**1891**	323·9	331·3	338·6	346·0	353·2	0·8	7·5	14·5	21·7	28·4
159·6	166·9	179·8	195·6	212 7	230·1	246·7	261·6	272·4		275·3	269·2	264·1	268·1	279·5	295·1	312·6	331·0	349·2	6·3
279·0	279·5	280·3	281·5	282 9	284·4	286·2	288·3	290·4		292·6	294·9	297·2	299 5	301·9	304·3	306·7	309·0	311·3	313·5
219·0	226·6	232·6	235·8	235·3	231·3	225·1	221·1	220·9		224·4	230·5	238·4	247·5	257·5	267·9	279·0	290 3	301·8	313·5
141·5	142·5	143·5	144·5	145·6	145·9	146·5	146·6	146·7		146·7	146·3	145·9	145·5	144·7	143·9	143·2	142·4	141·6	140·8

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Srav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346 7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999 ;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1891 Mars	...	32·1	39·2	45·9	52·7	59·4	66·2	72·9	79·3	85·8	92·4	98·9	105·4	111·8	118·4	124·6	130·9	137·2	143·6
Merc.	...	14·7	27·4	32·5	28·3	22·1	25·6	37·2	53·0	71·0	89·7	108·2	125·7	140·9	151·4	153·6	147·4	142·6	147·9
Jup.	...	314·7	316·7	318·5	320·2	321·7	322·9	323·9	324·5	324·8	324·7	324·4	323·7	322·8	321·4	320·1	318·8	317·4	316·2
Ven.	...	319·9	331·8	345·6	355·6	7·7	19·6	31·7	43·8	55·9	68·0	80·3	92·2	104·0	116·7	129·0	141·4	153·8	166·2
Sat.	...	140·5	140·1	139·7	139·5	139·7	139·9	140·0	140·7	141·5	142·1	143·2	144·2	145·3	146·5	147·7	149·0	150·3	151·6
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1892 Mars	...	262·9	269·0	274·1	278·4	282·9	286·9	290·1	293·4	294·3	294·5	294·0	290·8	287·3	283·3	284·7	285·2	286·7	289·2
Merc.	...	13·1	10·8	3·7	4·8	15·3	30·5	48·4	67·1	86·0	103·7	119·9	132·4	137·0	132·5	126·0	128·7	139·9	154·7
Jup.	...	342·7	345·0	347·3	349·6	351·7	353·7	355·5	357·2	358·5	359·7	0·6	1·1	1·3	1·1	0·6	359·7	358·6	357·3
Ven.	...	44·6	55·2	65·3	75·4	82·8	89·3	94·0	94·4	91·9	85·7	80·1	77·2	78·3	82·9	89·5	98·3	107·7	117·6
Sat.	...	154·1	153·5	153·0	152·4	152·3	152·3	152·2	152·7	153·3	153·7	154·6	155·5	156·4	157·5	158·6	159·8	161·1	162·4
1893 Mars	...	47·0	53·3	59·9	66·3	72·7	79·1	85·5	92·0	98·3	104·7	111·1	117·3	123·7	130·2	136·5	142·8	149·3	155·7
Merc.	...	346·0	344·8	353·2	7·9	25·4	44·0	63·1	81·4	98·5	112·1	119·0	115·8	109·2	109·5	119·5	133·8	150·5	168·2
Jup.	...	10·2	12·6	15·0	17·4	19·7	21·1	24·4	26·6	28·6	30·6	32·3	33·9	35·3	36·3	37·0	37·3	37·6	37·2
Ven.	...	354·6	7·1	19·0	31·3	44·0	56·3	68·5	80·7	92·9	105·1	117·5	129·6	141·6	153·7	165·6	177·6	189·8	201·8
Sat.	...	167·4	166·7	166·0	165·4	165·1	164·8	164·5	164·7	164·9	165·2	166·0	166·8	167·5	168·6	169·7	170·7	171·9	173·1
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1894 Mars	...	286·7	293·7	300·4	307·4	314·2	320·9	327·4	333·9	339·9	345·9	351·2	356·0	0·2	3·8	6·2	7·4	7·2	5·6
Merc.	...	332·8	345·8	2·7	21·1	40·2	59·0	76·3	91·0	100·0	99·2	92·1	90·4	93·9	112·6	128·3	146·8	164·8	181·9
Jup.	...	37·7	39·8	42·0	44·4	46·7	49·1	51·5	53·8	56·1	58·4	60·7	62·7	64·8	66·6	68·2	69·6	70·8	71·6
Ven.	...	314·3	323·0	332·8	343·3	353·9	5·1	16·4	27·7	39·2	51·3	63·0	74·8	86·8	98·7	110·9	123·2	135·5	147·6
Sat.	...	180·4	179·6	178·8	178·1	177·6	177·1	176·6	176·6	176·7	176·7	177·2	177·7	178·3	179·2	180·1	181·0	182·2	183·4
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1895 Mars	...	61·7	67·8	73·7	79·8	85·9	91·9	98·2	104·4	110·5	116·9	122·9	12·93	135·6	142·0	148·4	154·7	161·4	167·8
Merc.	...	340·4	358·5	17·3	36·0	54·0	69·3	79·8	81·5	74·8	71·5	78·3	91·2	107·7	125·2	143·6	161·0	177·1	189·9
Jup.	...	65·8	67·4	69·2	71·1	73·1	75·2	77·5	79·7	82·1	84·4	86·6	89·0	91·2	93·3	95·4	97·4	99·3	100·9
Ven.	...	31·3	43·1	55·3	66·7	78·4	89·3	100·8	111·8	122·1	132·1	141·4	149·6	156·2	160·8	161·7	158·9	152·9	147·5
Sat.	...	193·0	192·2	191·4	190·6	190·0	189·4	188·7	188·5	188·4	188·1	188·4	188·7	189·0	189·8	190·7	191·5	192·6	193·7
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1896 Mars	...	306·0	313·5	321·1	328·5	336·1	343·6	350·9	358·2	5·1	12·2	18·7	25·4	31·7	37·6	43·4	48·5	53·3	57·6
Merc.	...	354·7	13·2	31·4	47·3	59·2	63·0	57·5	52·3	57·1	69·6	85·6	103·6	121·9	140·2	156·6	170·8	179·3	179·2
Jup.	...	95·4	96·1	97·0	98·3	99·8	101·5	103·3	105·4	107·4	109·5	111·7	113·9	116·2	118·4	120·7	122·9	124·9	127·1
Ven.	...	333·4	348·6	0·9	13·4	25·4	37·7	49·8	62·2	74·4	86·8	98·9	111·2	123·4	135·6	148·1	160·2	172·7	185·1
Sat.	...	205·2	204·4	203·6	202·9	202·2	201·5	200·7	200·4	200·0	199·6	199·7	199·8	200·0	200·5	201·3	201·8	202·7	203·7
1897 Mars	...	77·8	83·0	88·4	94·0	99·7	105·3	111·2	117·2	123·0	129·3	135·4	141·5	147·9	154·2	160·6	167·2	173·8	180·2
Merc.	...	8·8	25·3	38·2	44·5	39·8	33·5	36·5	47·7	63·3	81·3	100·0	118·1	135·6	150·7	161·3	163·6	157·3	152·5
Jup.	...	126·8	126·5	126·5	126·7	127·4	128·2	129·4	130·8	132·4	134·1	136·1	138·1	140·2	142·3	144·4	146·7	148·9	151·1
Ven.	...	25·8	22·1	15·4	10·6	8·8	10·7	15·8	22·9	31·3	40·7	50·8	61·4	72·0	83·3	94·9	106·6	118·5	130·4
Sat.	...	217·1	216·4	215·7	214·9	214·1	213·3	212·6	212·1	211·5	211·0	210·9	210·8	210·8	211·2	211·7	212·2	213·1	214·0
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1898 Mars	...	323·8	331·6	339·4	347·0	354·5	2·1	9·6	16·9	24·1	31·2	38·1	44·9	51·7	58·2	64·4	70·5	76·5	82·0
Merc.	...	16·7	24·1	21·7	14·7	15·5	25·8	40·9	58·7	77·3	95·7	113·6	129·8	142·3	147·0	142·7	135·8	138·6	149·0
Jup.	...	160·1	159·0	158·2	157·3	156·9	156·9	157·0	157·7	158·1	159·6	160·9	162·5	164·3	166·1	168·1	170·2	172·3	174·4
Ven.	...	13·8	26·1	38·4	50·2	62·7	74·7	86·8	98·7	110·5	122·3	134·0	145·6	157·0	168·3	179·3	190·0	200·3	209·7
Sat.	...	228·7	228·1	227·5	226·9	226·1	225·3	224·6	223·9	223·2	222·6	222·3	222·0	221·8	222·0	222·3	222·6	223·3	224·0
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1899 Mars	...	96·9	100·4	104·7	109·5	114·5	119·6	125·2	130·6	136·6	142·4	148·3	154·3	160·8	167·1	173·5	180·0	186·9	193·5
Merc.	...	4·1	356·6	355·6	4·0	18·6	35·8	54·2	73·3	91·6	108·6	121·8	129·2	126·5	119·2	119·9	129·0	143·6	160·3
Jup.	...	194·2	191·9	191·7	190·3	189·1	188·1	187·4	187·0	187·0	187·2	187·7	188·6	189·0	190·9	192·4	194·2	196·1	198·1
Ven.	...	320·3	332·4	344·2	356·2	8·1	20·2	32·2	44·4	56·0	68·6	80·9	92·8	105·2	117·3	129·8	142·0	154·0	166·8
Sat.	...	240·1	239·7	239·3	238·7	238·0	237·3	236·5	235·8	235·1	234·3	233·8	233·4	233·0	233·0	233·1	233·1	233·7	234·3
Eng. date	...	Ap 11	Ap 21	My 1	My 11	My 21	My 31	Je 10	Je 20	Je 30	Jl 10	Jl 20	Jl 30	Au 9	Au 19	Au 29	S 8	S 18	S 28
1900 Mars	...	340·6	348·5	356·0	3·7	11·3	18·6	25·9	33·2	40·5	47·5	54·2	61·1	67·7	74·4	80·8	87·0	93·3	99·3
Merc.	...	336·2	342·6	358·1	13·0	31·6	50·7	69·4	86·8	101·2	110·3	110·3	102·9	100·9	108·7	122·6	138·9	156·6	174·3
Jup.	...	227·9	227·2	226·2	225·1	223·8	222·4	221·1	219·9	219·0	218·2	217·7	217·6	217·9	218·4	219·3	220·4	221·8	223·3
Ven.	...	44·7	55·1	65·1	74·3	82·5	88·5	92·2	92·5	88·6	82·3	76·7	74·9	77·0	82·0	89·4	97·7	107·5	117·5
Sat.	...	251·1	250·8	250·6	250·3	249·7	249·1	248·4	247·7	248·3	248·2	245·5	244·9	245·2	244·1	244·0	243·9	244·3	244·8
1901 Mars	...	121·6	122·9	125·3	128·4	132·1	136·3	141·1	146·1	151·5	157·1	163·0	168·8	175·1	181·2	187·8	194·3	201·1	208·0
Merc.	...	334·6	350·5	8·6	27·4	48·1	64·3	79·8	90·6	92·5	85·8	82·1	88·6	101·2	117·5	135·0	153·1	170·8	186·7
Jup.	...	260·0	260·3	260·4	260·1	259·5	258·6	257·4	256·2	254·9	253·5	252·3	251·0	250·4	249·8	249·7	249·9	250·3	251·1
Ven.	...	355·2	7·6	20·0	32·3	44·2	56·9	69·2	81·3	93·5	105·7	118·1	130·0	142·3	154·3	166·3	178·2	190·3	202·2
Sat.	...	263·2	262·1	262·1	262·0	261·4	260·8	260·2	259·4	258·6	257·9	257·2	256·6	255·9	255·7	255·4	255·0	255·1	255·4
Eng. date	...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1902 Mars	...	356·6	4·0	11·7	19·0	26·4	33·7	40·9	47·9	54·9	61·7	68·7	75·4	82·0	88·5	94·9	101·2	107·4	113·5
Merc.	...	346·0	4·6	23·5	41·7	57·9	70·2	74·2	68·6	63·2	68·2	79·6	95·6	113·6	131·5	149·4	166·0	180·2	188·8
Jup.	...	289·9	291·4	292·5	293·5	294·1	294·2	294·2	293·7	293·0	292·0	290·7	289·3	287·9	286·7	285·6	284·6	284·0	283·6
Ven.	...	313·6	322·6	333·0	343·0	353·9	5·1	16·4	28·3	39·6	51·8	63·3	75·3	87·3	99·3	111·4	123·5	136·1	148·0
Sat.	...	273·0	273·1	273·3	273·3	273·1	272·7	272·3	271·5	270·7	270·0	269·3	268·6	267·8	267·4	268·0	268·3	268·3	268·2

Mesh.	Vrish.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardn.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·8	53·3	66·7	80·0	93·3	106·6	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999 Mercury. A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999
Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 7	Mr 17	Mr 27	Ap 6
149·9	156·2	162·3	168·9	174·9	181·3	187·5	193·7	199·9	**1892**	206·1	212·4	218·7	224·8	230·9	237·0	243·2	248·9	254·8	260·5
159 8	175·2	192·2	209·7	226·6	242·0	254·2	259 3	255·4		248·5	249·9	259·7	274·2	291·2	309 1	827·4	344·6	859·9	10·8
315·2	314·5	314·3	314·1	314·5	315·2	316·9	317·4	318·9		320·7	322·6	324·7	326 9	329·1	331·4	333·9	336·3	338·7	344·1
178·7	191·2	203·6	216·2	228·7	241·3	253·8	266·5	279·0		291·5	303·9	316 2	328·3	340·7	352·7	4·3	16·2	27·9	38·8
152 8	153·9	155·8	156·1	156·9	157·7	158·5	158·8	159·2		159·5	159·3	159·1	158·9	158·2	157·6	156·9	156·1	155·3	154·4
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
293·0	297·4	302·3	307·5	313·1	319 1	325·3	331·6	337·9	**1893**	344·3	350·9	357·5	4·0	10·6	17 2	23·7	30·5	36·8	43·3
171·2	188·7	206·4	228·3	235·6	242·9	241·8	234 2	232 3		240 0	253·8	270·1	287·7	305 6	323·1	338·7	350·6	354·7	349·8
356·1	354·7	353·4	352·2	351·3	350·8	350·6	350·7	351·2		352·0	358·1	354·4	356·1	357·9	359·9	2·0	4·3	6·5	8·9
128·5	139·9	150·9	162·7	174·6	186·6	198 8	211·2	223·2		235·8	248·3	260 7	275 3	285·8	298·5	310·6	325·2	335·6	347·2
163·6	164·7	165·9	167·0	168·0	169·0	170·0	170 5	171·0		171·5	171·5	171·6	171·6	171·1	170 6	170·1	169·3	168·6	167·8
162·1	168·6	175·1	181·4	188·1	194·6	201·2	207·7	214·4	**1894**	221·0	227·8	234·6	241·4	248·2	255·1	262·0	269·0	275 9	283·0
185·8	202·4	216·5	226·1	227·4	220·5	216·3	221·7	233·7		249·3	266·5	284·7	301·7	317·7	330·3	336·4	333·3	328·5	327·5
36·6	35·7	34·5	33·2	31·8	30·5	29·2	28·2	27·4		26·9	26·8	27·1	27·6	28·5	29·7	31·1	32·8	34·5	36·6
218·4	225·5	237·0	248·4	259·7	270·5	280·7	290·5	299·1		306·0	311·4	313·0	311·1	304·7	299·7	299·6	298 2	303·2	309·3
174·2	175·4	176·6	177·9	178·9	179·9	181·0	181·7	182·4		183·2	183·4	183·6	183·7	183·4	183·1	182·8	182 1	181·4	180·8
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
3·5	0·8	358·4	357·5	357·4	358·5	0·3	3·2	6·6	**1895**	10·5	14·7	19·7	24·9	30·1	35·4	41·1	46·9	52·7	58·5
197·1	208·6	212·3	207·5	201·1	203·3	214·1	228·8	245·6		263·3	280·5	296·9	310·3	318·3	316 9	307·6	308·4	317·5	331·4
72·3	72·4	72·4	71·9	71·2	70·1	68·8	67·4	66·2		64·9	64·7	62·7	62·1	61·8	61·8	62·2	62·8	63·8	65·0
159·9	172·4	184·8	197·3	209·9	222·3	235·1	247·7	260·3		272·9	285·5	290·4	310·3	323·3	336·0	348·4	0·8	13 0	24·6
184·6	185·8	187·0	188·2	189·3	190·4	191·5	192·3	193·1		194·0	194·5	195·0	195·4	195·2	195 1	195·0	194·4	193·8	193·3
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 7	Mr 17	Mr 27	Ap 6
174·2	180·9	187·7	194·4	201·1	207·9	214·7	221·6	228·6	**1896**	235·7	242·9	250·0	257·4	264·7	271·9	279·6	286·9	294·5	302·0
196·2	193·6	186·1	186·3	195·1	208·9	225·2	242·4	260·0		276·4	290·6	299·9	300·9	299·8	299·5	296·9	309·9	326·5	344·7
102·4	103·6	104·5	105·2	105·5	105·6	105·3	104·6	103·7		102·5	101·2	99·9	98·5	97·4	96·3	95·4	95·1	94·8	95·1
145·0	146·7	151·5	158·4	166·6	176·5	186·6	197·8	209·1		220·4	232·5	244·3	256·4	268 6	280·9	293·1	305 3	317·6	330·1
194·8	196·0	197·2	198·3	199·5	200·5	201·8	202·6	203·7		204·6	205·2	205·8	206 4	206·5	206·7	206 8	206·3	205·9	205·4
O 8	O 18	O 28	N 7	N 17	N 27	D 7	D 17	D 27		Ja 6	Ja 16	Ja 26	F 5	F 15	F 25	Mr 7	Mr 17	Mr 27	Ap 6
61·1	63·8	65·4	66·0	65·2	62·9	60·2	56·9	53·9	**1897**	51·7	50·6	51·1	52·5	54·9	57·9	61·6	65·7	70·3	75·2
171·8	168·8	175·9	189·0	204·9	225·9	239·2	256·1	270·9		281·5	287·9	279·0	273·5	277·6	289·3	304·8	322·7	341·0	359·3
129·0	130·7	132·4	133·8	135·1	136 0	136·7	137·1	137·1		136·9	136·3	135·3	134·2	132·9	131·8	130·2	129·0	127·9	127·1
197·4	209·8	222·2	234·5	246 6	259·0	271·2	283·2	295·7		307·6	318·6	330·0	340·8	351·2	1·1	10·0	17·5	23·1	25·8
204·7	205·9	207·1	208·2	209·4	210·6	211·7	212·8	213·9		214·9	215·6	216·3	217·1	217·4	217·6	218·0	217·9	217·6	217·4
186·9	193·7	200·6	207·4	214·4	221·6	228·7	236·0	243·2	**1898**	250·7	257·9	265·6	273·2	280·8	288·5	296·3	304·1	311·9	319·7
157·5	169·2	184·6	205·5	218·8	235·9	251·1	263·3	269·7		264·9	257·8	259·2	269·7	283·7	300·8	318·9	337·3	354·8	10·3
158·2	155·3	157·4	159·4	161·1	162·8	164·2	165·4	166·4		167·0	167·4	167·5	167·3	166·6	165·7	164·7	163·4	162·1	160·8
142·4	154·6	166·7	179·2	191·6	204·0	216·6	227·0	241·7		254·4	267·0	279·6	292·1	304·7	317·3	329 9	342·3	354·7	7·2
214·8	215·9	217·0	218·1	219·4	220·7	221·9	223·0	224·1		225·1	226·0	226·8	227·7	228·1	228·5	228·8	228·8	228·7	228·7
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
87·2	92·0	96·6	100·3	103·6	106·0	107·5	107·8	106·9	**1899**	104·3	100·9	97·2	93·6	90·7	89·3	89·0	90.0	92·1	94·9
184·1	180·7	198·1	215·4	231·3	244·5	252·1	250·9	242·3		241·5	249·7	263·0	279·3	297·0	315·2	332·8	348·8	1·0	5·6
176·6	178·9	181·0	183·2	185·3	187·4	189 3	191 0	192·7		194·2	195·3	196·4	197·0	197·5	197·6	197·3	196·8	195·8	194·8
218·5	225·9	231·3	233·7	232·8	227·3	221·6	218·5	219·0		223·3	230·0	238·4	247·7	257·7	268·3	279·5	290·8	302·4	314·0
224·7	225·7	226·7	227·8	229·0	230·2	231·3	232·4	233·6		234·7	235·7	236·7	237·7	238·3	238·9	239·6	239·7	239 9	240·0
200·4	207·3	214·2	221·5	228·6	235·9	243·8	250·7	258 3	**1900**	265·9	273·7	281·4	289·1	297·0	304·8	312·8	320·8	328·5	336·5
177·5	195·0	211·6	225·6	235·2	236·3	229·3	225 1	230·4		243·0	258·8	276·1	293·9	311 3	327·4	340·4	347·0	343·7	336·7
200·2	202·4	204·5	206·7	208·9	211·2	213·3	215·5	217·6		219·5	221·3	223·1	224·6	225·0	226·9	227·7	228·1	228·3	228·2
178·8	191·8	204·2	216·8	229·3	241·9	254·6	267·0	279·7		292·1	304·5	316·6	328·9	341·1	353·1	4·7	16·6	28·1	39·2
234·9	235·8	236·7	237·6	238·9	239·8	241·0	242·2	243·4		244·5	245·6	246·6	247·7	248·5	249·3	250·1	250·4	250·5	251·2
105·1	110·6	115·8	120·8	125·6	129·9	133·6	136·7	139·1	**1901**	140·5	141·1	139·7	137·3	134·0	130·4	126·6	123·5	121·5	121·3
191·4	206·4	217·6	221·4	216·1	210·0	212·5	223 3	238·3		255·0	272·7	290·0	306·5	320·2	328 1	327·7	319·8	318·8	327·2
225·1	227·0	229·0	231 1	233·4	235·5	237·9	240·1	242·4		244·5	246·8	248·9	250·9	252·9	254·7	256·8	257·7	258·8	259·6
128·4	139·9	151·3	163·1	174·1	187·1	199·3	211·5	223·7		235·9	248·8	261·1	273 7	286·2	298·8	311·2	323·6	336·2	348·6
245·1	246·0	246·8	247·5	248·7	249·7	250·8	252·0	253·2		254·3	255·4	256·5	257·7	258·6	259·5	260·4	260·9	261·4	262·0
214·8	221·9	228·9	236·3	243·7	251·1	258·8	266·4	274·0	**1902**	281·9	289·6	297·7	305·5	313·3	321·2	329·1	337·0	344·6	352·3
199·3	205·5	202·6	195·2	195·1	204·3	218·0	234·2	251·7		269·3	285·9	300·3	309·7	310·6	304·0	300·2	307·1	320·0	336·5
252·2	253·5	255·2	256·9	258·9	260·9	263·0	265·3	267·5		269·9	272·1	274·4	276·8	279·1	281·4	283·5	285·5	287·4	289·2
214·0	226·0	237·4	248·8	259·9	270·7	280·5	290·3	298·6		305·0	309·7	310·8	307·8	301·0	296·0	295·5	297·0	301·5	308·6
255·5	256·2	256·9	257·6	258·6	259·7	260·7	261·8	263·0		264·1	265·3	266·5	267·7	268·7	269·6	270·7	271·3	272·1	272·7
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
119·6	125·5	131·2	136·9	142·3	147·5	152·5	157·2	161·4	**1903**	165·4	168·7	171·1	172·9	173·3	172·7	170·4	167·1	163·3	159·5
188·4	181·0	178·4	186·1	197·6	213·8	230·4	248·4	265·2		280·4	291·4	294·4	288·5	287·2	287·6	298·7	314·7	332·2	350·9
2>3·6	284·0	284·7	285·6	287·0	288·4	290 2	292·0	294·1		296·3	298·5	300·9	303·2	305·6	308·0	310·3	312·7	315·0	317·4
160·6	173·0	185·4	197·8	210·5	223·1	235·6	248·4	260·8		273·5	286·0	298·9	311·3	323·9	336·5	348·9	1·3	13·5	25·2
266·3	266·8	267·4	267·9	268·9	269·7	270·7	271·9	273·0		274·1	275·3	276·5	277·7	278 8	279·8	281·0	281·8	282·7	283·5

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle.

Venus, A.D. 1765—A.D. 1999

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
	Eng. date ...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1903	Mars ...	158·0	155·6	154·6	155·1	156·2	158·7	161·9	165·8	170·1	175·0	180·3	185·7	191·6	197·9	204·0	210·5	217·3	224·2
	Merc. ...	0·9	19·2	35·6	48·7	54·7	51·1	44·6	47·1	58·2	73·6	91·2	109·8	128·0	145·2	160·6	170·9	173·2	166·7
	Jup. ...	318·5	320·5	322·5	324·4	325·9	327·3	328·4	329·2	329·6	329·8	329·6	329·0	328·2	327·1	325·8	324·5	323·0	321·7
	Ven. ...	31·8	44·0	55·7	67·4	79·1	90·5	101·3	112·1	122·3	132·1	141·3	149·3	155·5	158·7	159·4	155·6	149·0	144·8
	Sat. ...	283·8	284·1	284·5	284·8	284·7	284·4	284·2	283·6	283·0	282·4	281·6	280·8	280·1	279·4	278·8	278·1	277·9	277·8
	Eng. date ...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1904	Mars ...	11·7	19·6	26·3	33·6	40·7	47·8	54·8	61·5	68·4	75·1	81·7	88·5	94·9	101·5	107·8	114·1	120·5	126·7
	Merc. ...	13·5	27·4	34·8	33·2	25·9	26·4	36·1	51·3	68·9	87·6	105·9	124·0	140·0	152·0	156·6	152·2	145·7	147·9
	Jup. ...	346·4	348·8	351·1	353·4	355·5	357·7	359·7	1·4	2·9	4·2	5·2	6·0	6·2	6·3	5·9	5·3	4·3	3·0
	Ven. ...	337·0	349·3	1·4	18·8	26·0	38·3	50·0	62·8	70·0	87·4	99·5	111·8	125·0	136·2	148·7	160·8	173·3	185·7
	Sat. ...	294·6	295·2	295·9	296·4	296·3	296·5	296·5	296·0	295·5	295·0	294·2	293·4	292·6	291·9	291·3	290·6	290·2	289·8
1905	Mars ...	211·3	209·5	206·9	203·6	200·4	198·2	197·2	197·8	199·1	202·0	205·2	209·3	214·1	219·2	225·0	230·8	237·2	243·8
	Merc. ...	14·6	15·1	7·9	6·1	14·8	28·9	46·1	64·7	83·6	101·9	118·6	132·1	139·1	136·7	130·6	129·8	139·1	152·8
	Jup. ...	13·7	16·0	18·4	20·8	23·3	25·7	28·0	30·2	32·4	34·2	36·3	37·9	39·4	40·5	41·4	42·2	42·5	42·3
	Ven. ...	22·6	18·3	11·8	7·2	6·1	9·2	15·0	22·1	31·3	40·8	50·9	61·6	72·5	84·2	96·1	107·3	118·9	131·3
	Sat. ...	305·6	306·3	307·0	307·8	308·0	308·3	308·5	308·2	307·9	307·6	307·0	306·4	305·6	304·8	304·0	303·2	302·7	302·2
	Eng. date ...	Ap13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1906	Mars ...	26·6	33·5	40·4	47·5	54·2	61·0	67·8	74·5	81·0	87·7	94·4	100·7	107·2	113·7	120·0	126·5	132·7	139·9
	Merc. ...	350·5	346·9	353·3	6·3	23·3	41·8	60·8	79·5	96·9	111·8	120·9	120·4	113·2	111·0	119·0	132·1	148·6	165·9
	Jup. ...	41·6	43·8	45·9	48·2	50·5	52·9	55·2	57·5	59·9	62·2	64·5	66·5	68·5	70·2	71·9	73·6	75·0	76·0
	Ven. ...	14·4	26·7	39·0	51·3	63·4	75·4	87·4	99·2	111·0	122·8	134·5	146·2	157·7	168·6	179·6	190·2	200·3	209·5
	Sat. ...	316·6	317·5	318·4	319·3	319·8	320·3	320·8	320·7	320·6	320·6	320·0	319·5	318·9	318·1	317·3	316·5	315·8	315·1
1907	Mars ...	252·2	256·3	260·2	263·3	265·5	266·8	267·1	266·0	264·4	261·5	258·9	257·3	256·9	257·9	260·1	263·2	267·4	272·1
	Merc. ...	332·7	314·8	0·9	19·1	37·9	56·9	74·7	90·2	101·1	103·2	96·7	92·7	98·5	111·2	127·3	144·7	162·6	180·2
	Jup. ...	69·7	71·2	72·8	74·7	76·7	78·8	81·0	83·2	85·6	87·9	90·1	92·5	94·7	97·0	99·0	101·0	102·8	104·6
	Ven. ...	320·6	332·6	344·7	356·7	8·6	20·7	32·8	45·0	57·0	69·2	81·2	93·1	105·7	117·8	130·3	142·5	154·7	167·3
	Sat. ...	327·7	328·8	329·9	330·9	331·6	332·2	332·9	333·1	333·3	333·5	333·1	332·8	332·4	331·7	331·9	330·2	329·4	328·6
	Eng. date ...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1908	Mars ...	41·1	47·7	54·3	60·9	67·6	74·1	80·6	87·1	93·5	99·8	106·3	112·7	119·2	125·6	131·9	138·3	144·7	151·0
	Merc. ...	333·5	358·2	14·9	34·0	52·2	68·5	80·5	85·1	79·8	74·1	78·5	90·1	105·7	123·2	141·3	159·3	176·8	189·6
	Jup. ...	99·5	100·1	101·0	102·0	103·4	104·9	106·8	108·8	110·7	112·8	115·0	117·2	119·4	121·6	123·8	126·1	128·2	130·3
	Ven. ...	45·0	55·6	64·9	74·0	81·3	87·7	89·4	89·8	85·1	78·7	73·7	72·7	75·8	81·6	89·1	97·9	107·7	118·2
	Sat. ...	338·9	340·1	341·3	342·5	343·4	344·2	345·2	345·7	346·2	346·6	346·4	346·3	346·2	345·6	345·0	344·4	343·6	342·8
1909	Mars ...	278·2	284·9	291·2	297·6	303·9	309·8	315·5	326·6	326·2	330·7	334·7	337·5	339·3	339·7	338·9	336·7	334·1	332·0
	Merc. ...	352·2	11·2	29·4	46·4	59·8	65·8	62·3	55·6	58·0	68·3	84·0	101·2	119·5	137·7	155·0	170·0	180·5	182·4
	Jup. ...	131·4	130·9	130·9	130·8	131·3	132·1	133·2	134·5	136·0	137·6	139·4	141·4	143·4	143·5	147·6	149·8	152·0	154·2
	Ven. ...	355·7	8·8	20·5	32·8	45·1	57·4	69·7	81·8	94·0	106·2	118·6	130·5	142·8	154·8	166·7	178·7	190·8	202·6
	Sat. ...	350·6	351·9	353·2	354·4	355·5	356·6	357·6	358·3	359·0	359·7	359·8	0·0	0·1	359·7	359·3	358·8	358·0	357·2
	Eng. date ...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1910	Mars ...	55·0	62·0	68·4	74·4	80·5	87·0	93·3	99·4	105·7	112·0	118·4	124·6	130·9	137·3	143·6	149·9	156·4	163·0
	Merc. ...	6·9	24·0	39·1	46·0	44·3	37·0	37·6	46·9	61·7	79·1	97·6	115·9	133·9	149·7	161·7	168·4	161·7	155·2
	Jup. ...	164·8	163·7	162·5	161·6	161·1	161·0	161·1	161·3	162·3	163·4	164·6	166·1	167·1	169·7	171·6	173·7	175·7	177·9
	Ven. ...	313·6	322·9	333·1	343·8	354·5	5·8	17·2	28·9	40·4	52·4	64·6	75·9	87·9	100·0	112·2	124·4	136·8	148·7
	Sat. ...	2·4	3·7	5·0	6·3	7·5	8·7	9·9	10·8	11·7	12·6	13·0	13·4	13·9	13·8	13·6	13·4	12·8	12·2
1911	Mars ...	298·5	306·0	313·4	326·0	323·2	335·3	342·7	349·6	356·5	3·2	9·5	15·9	21·5	27·2	32·2	36·4	40·2	43·1
	Merc. ...	16·5	26·0	26·1	19·2	17·0	25·1	39·5	56·6	75·0	93·7	111·9	128·5	142·2	148·9	147·0	139·4	135·8	147·9
	Jup. ...	198·8	197·6	197·0	194·9	193·8	192·8	191·9	191·4	191·4	191·4	191·7	192·6	193·5	194·9	196·3	198·0	199·7	201·7
	Ven. ...	32·4	44·4	56·3	67·8	79·5	90·9	101·6	112·3	122·8	132·1	140·9	148·5	154·3	157·2	156·6	151·8	145·7	140·8
	Sat. ...	14·4	14·9	17·0	18·4	18·8	21·0	22·3	23·4	24·5	25·6	26·2	27·0	27·6	27·8	27·9	28·0	27·6	27·2
	Eng. date ...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1912	Mars ...	71·2	76·9	82·5	88·3	94·1	100·0	106·0	112·0	118·2	124·2	130·4	136·8	143·0	149·4	155·7	162·2	168·8	175·3
	Merc. ...	8·0	1·7	357·5	4·0	16·9	33·8	52·1	71·1	89·9	107·1	121·6	130·9	130·7	123·7	121·3	128·0	141·8	158·0
	Jup. ...	232·4	231·0	230·6	229·9	228·6	227·3	225·9	224·8	223·7	222·9	222·2	222·0	222·0	222·4	223·3	224·4	225·4	226·8
	Ven. ...	337·5	349·8	2·1	14·3	26·5	37·8	51·1	63·3	75·5	87·9	100·0	112·3	125·3	136·9	149·2	161·3	173·8	186·2
	Sat. ...	26·8	28·1	29·4	30·1	32·0	33·4	34·8	36·0	37·2	38·5	39·4	40·2	41·1	41·5	41·9	42·4	42·2	42·1
	Eng. date ...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1913	Mars ...	317·0	324·8	332·5	339·8	347·7	355·1	2·7	9·9	17·2	24·3	31·3	38·3	46·6	51·0	57·1	68·1	68·7	73·8
	Merc. ...	339·0	343·2	355·3	11·4	29·4	48·4	67·4	86·0	100·6	111·3	113·8	107·2	103·4	108·8	120·9	137·2	154·8	172·3
	Jup. ...	264·0	264·6	264·8	264·7	264·4	263·6	262·6	261·4	260·1	258·8	257·5	256·3	255·5	254·7	254·4	254·4	254·6	255·3
	Ven. ...	10·5	14·2	8·3	4·2	4·1	8·1	14·3	22·1	31·0	41·0	51·4	61·9	73·0	84·3	96·0	107·8	119·7	131·6
	Sat. ...	39·4	40·7	42·0	43·3	44·6	45·9	47·3	48·6	49·9	51·2	52·3	53·4	54·4	55·1	55·8	56·5	56·6	56·6
	Eng. date ...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1914	Mars ...	88·6	93·1	97·9	103·2	108·5	113·8	119·5	125·2	131·2	137·2	143·2	149·2	155·6	162·1	168·5	175·1	181·6	188·3
	Merc. ...	333·5	348·8	6·4	25·3	44·3	62·7	78·7	91·1	95·7	90·7	84·9	89·0	100·3	115·8	133·0	151·0	168·8	185·1
	Jup. ...	293·8	295·4	296·7	297·7	298·9	299·0	299·2	298·6	295·1	297·2	296·2	294·9	293·6	292·4	291·2	290·1	289·2	288·7
	Ven. ...	15·1	27·3	39·8	51·9	64·0	76·0	87·9	99·8	111·4	123·4	135·0	146·6	157·9	169·2	180·0	190·4	200·1	209·4
	Sat. ...	52·3	53·5	54·7	55·8	57·1	58·4	59·8	61·1	62·5	63·9	65·1	66·3	67·5	68·4	69·3	70·2	70·6	71·5

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·6	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 8	Mr 18	Mr 28	Ap 7
231·2	238·2	245·5	252·9	260·3	267·9	275·6	283·1	290·9	**1904**	298·7	306·6	314·3	322·1	329·8	337·5	345·3	352·8	0·3	7·8
161·8	168·7	178·4	193·9	210·7	228·1	245·0	260·4	272·4		277·8	274·1	267·1	268·6	278·5	293·4	310·7	322·7	347·2	4·8
320·7	319·8	319·3	319·0	319·3	319·7	320·6	321·8	323·2		324·8	326·6	328·6	330·7	332·9	335·3	337·6	340·0	342·5	344·9
142·9	144·2	150·6	158·1	167·1	176·8	187·1	198·0	209·4		220·9	233·0	245·0	257·1	269·2	281·5	293·6	306·0	318·2	330·7
277·5	277·9	278·2	278·6	279·4	280·2	281·0	282·1	283·2		284·2	285·4	286·6	287·8	289·0	290·3	291·3	292·3	293·2	294·2
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
132·9	138·9	144·9	150·9	156·6	162·4	168·0	173·5	179·0	**1905**	184·3	189·3	194·0	198·4	202·4	205·8	208·6	210·8	212·0	212·8
158·8	173·4	190·2	207·4	224·8	240·7	253·8	261·1	259·7		252·2	250·9	258·6	272·6	289·1	307·0	325·2	343·0	358·9	11·4
1·8	0·4	359·1	357·7	356·7	356·1	355·6	355·6	355·9		356·5	357·5	358·7	0·2	2·0	3·9	5·9	8·0	10·4	12·7
198·0	210·4	222·6	234·9	247·2	259·4	271·6	283·8	295·9		307·6	319·0	330·2	341·0	351·4	0·7	9·6	16·7	21·5	23·1
289·2	289·4	289·5	289·5	290·2	290·9	291·5	292·5	293·5		294·5	295·7	296·9	298·0	299·2	300·4	301·7	302·8	303·9	305·0
250·5	257·5	264·6	271·8	279·4	286·4	294·0	301·5	309·1	**1906**	316·6	324·0	331·7	339·0	346·5	354·0	1·1	8·6	15·7	22·8
169·2	185·5	204·3	220·8	234·8	244·3	245·2	238·1	234·2		240·0	252·3	267·9	285·4	303·3	321·2	337·3	350·6	357·0	354·8
41·9	41·1	40·1	38·9	37·5	35·9	34·9	33·5	32·9		32·1	31·8	31·9	32·2	33·0	34·0	35·2	36·7	38·4	40·3
143·3	155·1	167·3	179·7	192·0	204·5	217·5	230·6	242·1		254·8	267·5	280·0	292·8	305·2	317·8	330·3	342·9	355·4	7·6
301·7	301·6	301·4	301·2	301·7	302·1	302·6	303·5	304·4		305·2	306·3	307·4	308·6	309·9	311·2	312·4	313·7	314·9	316·0
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
145·2	151·5	157·7	163·8	170·8	176·1	182·2	188·3	194·3	**1907**	200·5	206·2	212·1	217·9	223·7	229·3	234·8	240·0	245·0	249·9
183·9	200·5	215·6	226·7	230·2	224·6	218·6	221·9	232·5		247·3	264·6	282·1	299·7	316·2	330·1	338·5	337·6	330·1	329·2
76·7	77·0	77·1	76·8	76·2	75·3	74·2	72·7	71·5		70·4	69·1	68·1	67·2	66·8	65·8	66·9	67·8	68·1	68·9
218·0	224·8	229·3	230·8	228·3	222·7	217·3	215·1	217·1		221·8	229·2	237·9	247·4	257·7	268·6	279·7	291·0	302·7	314·4
314·3	314·1	313·9	313·4	313·6	313·8	314·1	314·9	315·6		316·3	317·4	318·5	319·5	320·7	321·9	323·2	324·5	325·8	327·1
																Mr 8	Mr 18	Mr 28	Ap 7
277·2	283·1	289·1	295·6	302·1	308·8	315·4	322·0	329·1	**1908**	335·9	342·9	347·9	356·8	3·7	10·6	17·2	24·1	30·8	37·6
195·8	208·5	214·5	211·6	204·2	204·3	213·1	227·2	243·5		261·0	278·8	293·4	309·7	319·6	320·8	314·1	310·5	316·8	330·1
106·1	107·6	108·6	109·3	109·8	109·9	109·5	109·1	108·4		107·4	106·3	105·1	103·6	102·5	101·4	100·4	99·8	99·5	99·6
179·8	192·3	204·7	217·3	229·8	242·6	255·1	267·4	280·0		292·4	305·0	317·1	329·4	341·6	353·6	5·2	16·9	23·4	39·3
327·8	327·3	326·8	326·1	326·3	326·2	326·2	326·7	327·2		327·9	328·9	329·9	330·8	332·1	333·2	334·4	335·7	337·0	338·3
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
157·4	163·8	170·1	176·6	183·0	189·5	195·8	202·3	208·9	**1909**	215·3	221·9	228·4	235·0	241·6	248·2	255·0	261·5	268·1	274·8
198·0	197·4	189·9	187·4	194·7	207·3	223·2	240·5	258·0		274·8	289·8	300·6	304·1	298·0	292·8	297·3	308·6	324·9	342·4
132·3	134·0	135·7	137·3	138·7	139·8	140·6	141·1	141·2		141·1	140·7	139·9	138·7	137·6	136·4	135·1	133·8	132·7	131·8
129·0	140·3	151·9	163·6	175·3	187·6	199·9	212·2	224·4		236·8	249·5	261·8	274·5	286·8	299·5	311·9	324·3	336·9	349·1
341·9	341·2	340·5	339·8	339·5	339·2	339·1	339·4	339·7		340·0	340·8	341·7	342·5	343·6	344·7	345·9	347·2	348·5	349·8
330·8	330·3	332·2	333·3	336·3	340·0	344·2	348·9	353·9	**1910**	359·1	4·7	10·4	16·1	22·1	28·0	34·6	40·1	46·3	52·5
175·9	171·2	176·2	187·7	202·9	219·9	237·2	254·4	269·8		282·1	287·3	283·3	276·7	278·3	288·1	303·0	320·4	338·7	357·2
156·4	158·6	160·6	162·6	164·5	166·1	167·6	168·9	169·9		170·9	171·4	171·5	171·4	170·9	170·2	169·1	168·0	166·7	165·5
214·5	226·4	237·6	249·1	260·0	270·7	280·4	289·8	297·7		304·0	307·2	307·2	303·3	297·0	292·4	291·8	294·8	300·7	308·2
356·5	355·7	354·8	354·0	353·6	353·1	352·7	352·7	352·8		352·9	353·5	354·1	354·8	355·8	356·8	357·9	359·1	0·3	1·6
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
169·4	176·0	182·6	189·3	195·9	202·6	209·2	216·1	223·0	**1911**	229·9	237·0	243·9	251·1	258·2	265·5	272·7	280·0	287·3	294·6
157·6	168·1	182·8	199·4	216·8	234·0	250·0	262·9	270·7		268·8	261·3	260·2	268·3	282·0	298·8	316·8	335·1	353·0	8·9
180·1	182·3	184·4	186·6	188·8	190·9	192·8	194·6	196·3		197·9	199·4	200·3	201·2	201·6	201·7	201·6	201·3	200·5	199·5
161·2	173·7	186·2	199·2	211·2	223·9	236·3	249·2	261·7		274·3	286·8	299·5	312·0	324·6	337·1	349·4	1·9	14·1	25·9
11·5	10·7	9·9	9·0	8·3	7·6	6·9	6·8	6·6		6·3	6·7	7·1	7·5	8·4	9·3	10·1	11·3	12·5	13·7
																Mr 8	Mr 18	Mr 28	Ap 7
44·9	45·2	44·6	43·0	40·0	37·0	34·5	32·8	32·3	**1912**	32·9	34·7	37·1	40·4	44·1	48·4	53·0	57·9	63·1	68·4
162·5	178·7	196·3	213·4	229·9	244·1	255·4	254·2	247·2		243·5	248·9	261·6	277·5	295·2	313·3	331·2	347·6	0·9	8·2
203·8	205·8	207·9	210·2	212·4	214·6	216·8	219·0	221·1		223·2	225·0	226·7	228·3	229·8	230·9	231·8	232·4	232·7	232·7
140·5	143·0	150·0	157·7	166·8	176·8	187·1	198·2	209·7		221·3	233·7	245·4	257·6	269·7	282·1	294·1	306·4	318·8	331·3
26·7	25·9	27·7	24·4	23·6	22·8	21·9	21·4	20·9		20·5	20·6	20·7	20·8	21·5	22·2	22·9	24·0	25·1	26·1
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
181·9	188·6	195·3	202·3	209·1	216·1	223·1	230·2	237·4	**1913**	244·7	254·1	259·5	266·9	274·6	282·0	289·9	297·5	305·2	312·9
175·4	193·0	209·9	224·6	235·8	238·8	234·0	227·8	231·0		241·6	256·8	273·8	291·6	309·4	326·4	340·0	348·6	348·4	341·0
228·6	230·4	232·4	234·5	236·7	238·9	241·1	243·3	245·7		247·9	250·1	253·8	254·3	256·3	258·2	259·9	261·5	263·8	263·6
198·5	210·8	223·8	235·4	247·7	260·1	272·1	284·2	296·1		307·9	320·1	330·5	341·2	351·3	0·9	9·4	15·6	18·3	21·3
41·9	41·3	40·6	39·9	39·0	38·2	37·3	36·7	36·1		35·3	35·1	34·9	34·8	35·2	35·6	35·9	36·9	37·8	38·8
78·5	82·9	86·6	89·8	91·8	92·9	92·9	91·3	88·7	**1914**	85·4	81·1	78·4	76·0	75·1	75·5	77·3	79·6	82·8	86·8
189·7	205·2	218·1	225·0	220·1	211·6	213·5	222·5	236·6		252·9	270·5	288·3	305·1	319·9	329·7	331·1	324·1	320·7	327·3
256·2	257·6	259·2	260·8	262·5	264·5	266·6	268·9	271·0		273·3	275·6	278·0	280·3	282·7	284·9	287·1	289·2	291·2	293·2
143·6	155·8	168·2	180·7	193·0	205·3	217·9	230·3	242·6		255·3	268·2	280·7	293·5	306·0	319·0	331·0	343·7	356·5	8·6
56·7	56·9	55·9	55·4	54·6	53·8	52·9	52·2	51·4		50·6	50·2	49·8	49·3	49·4	49·6	49·7	50·4	51·1	51·8
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
195·2	202·1	209·1	215·9	222·9	230·0	237·3	244·7	252·1	**1915**	260·0	267·6	275·2	282·9	290·7	298·8	306·2	314·2	322·2	329·9
198·8	207·0	206·4	198·9	196·6	203·8	216·6	232·5	249·7		267·2	284·2	299·2	310·5	313·9	308·1	302·6	307·3	318·8	334·7
288·5	288·8	289·3	290·1	291·3	292·6	294·2	295·9	298·2		300·3	302·4	304·8	307·1	309·4	311·8	314·3	316·7	319·1	321·4
217·4	224·1	227·8	229·0	224·6	218·5	213·6	212·6	215·4		221·1	228·5	237·4	247·4	257·9	268·8	279·9	291·4	303·1	315·0
71·4	71·2	71·0	70·9	70·2	69·5	68·9	68·0	67·1		66·3	65·6	64·9	64·2	64·0	63·9	63·8	64·2	64·6	65·1

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1915 Mars	...	334·0	341·9	349·6	357·8	4·8	12·4	19·7	27·1	34·4	41·4	48 4	54·9	61·8	68·5	74·7	81·0	87·0	92·8
Merc.	...	344·2	2·5	21·5	40·0	56·9	70·2	76·7	73·7	66·8	63·4	78·9	94·1	111·4	129·6	147·6	164 7	179·4	189·6
Jup.	...	323 2	324·4	326·4	328·4	330·0	331·6	332·8	333·7	334·4	334·8	334 9	334 4	333·7	332·7	331·5	330·2	328 8	327·4
Ven.	...	321·3	333·1	345·2	357·4	9·1	21·4	33·5	45·5	57 6	69·7	81·9	91·0	106·3	118·6	131·0	143·2	155·6	168·0
Sat.	...	65·5	66·5	67·5	68·5	69·8	71·1	72·3	73·7	75·0	76·3	77·6	78·9	80·2	81·3	82·4	83·5	84·1	84·8
																	S 9	S 19	S 29
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30			
1916 Mars	...	110 8	118·3	116·6	120·7	124·9	129·7	134·5	140·5	145·5	151·0	156·9	162·8	169·3	175 5	182·1	188·8	195·1	202·0
Merc.	...	358·7	17·1	S4 3	48·7	57·0	56·0	48·7	48·0	57·6	72·2	89·3	107·6	126·0	143·8	159·4	171·4	176·0	171·2
Jup.	...	349·9	352·3	354·7	357·1	359·3	1·4	3·5	5·8	7·0	8 0	9·6	10 5	11·1	11·3	11·1	10 6	10·0	8·9
Ven.	...	45·2	55 6	65·1	73·8	80·6	86·0	87·6	86·7	82·9	75·8	70 7	70·9	74·5	80·8	88·9	97·8	107·9	118·4
Sat.	...	79·1	79·9	80 7	81·5	82·6	83·7	84·9	86·2	87·5	88·9	90·2	91·5	92 9	94·1	95·3	96·4	97·4	98·2
																	S 10	S 20	S 30
Eng. date	...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 23	Au 1	Au 11	Au 21	Au 31			
1917 Mars	...	350·4	358·1	5·4	13·1	20·5	28·1	35·0	42·3	49·3	56·6	63·2	69 8	76·6	83·0	89·6	95·8	101·9	108 1
Merc.	..	12·0	27·8	37·3	37·4	30·2	28·1	36·2	50·0	67·0	85 1	103·8	122 0	138·5	152·1	158 2	156·8	149·1	149·3
Jup.	...	17 7	20·1	22·5	24 9	27·3	29·7	32·0	34·4	36·5	38·6	40·5	42 2	43 8	45·0	46·1	46·8	47·2	47·3
Ven.	...	356·5	8·8	21·2	33·5	45·9	58·1	70 2	82·5	94·4	106·9	119·1	131·2	143·3	155·3	167·3	179·2	191·4	203·0
Sat.	...	92·7	92·2	93·7	94·3	95·4	96·4	97·3	97·7	99·7	101·0	102·4	103·8	105·1	106 3	107·5	108·8	109·8	110·9
1918 Mars	...	141·8	141 1	141·4	143·2	145·8	149·0	153 8	157·2	162·1	167·4	73·0	178·7	184·7	191·0	197·4	203·9	210·6	217·9
Merc.	...	16·0	19·0	12·5	8·3	14·6	27·6	45·1	62 6	81·6	101·0	117 8	131·6	140·8	141·0	133·7	131·1	138·6	151·6
Jup.	...	45·3	47·5	49·6	51 8	53·7	56 4	58 7	61·0	63·4	65·7	68 0	70·2	72·2	73·9	75·8	77·5	78·9	80·0
Ven.	...	313·4	323·1	333·2	344·0	354·9	6·3	17·6	29·3	41·1	53·0	65·0	76·5	88·7	100·7	112·9	125·1	137·3	149·6
Sat.	...	106 5	106·7	106·9	107·3	108·1	108·9	109·6	110·7	111·8	113·7	114·3	115·6	116·8	118·1	119·4	120·8	121·9	123·0
1919 Mars	...	6·0	18·3	20·5	27·9	35·0	42·2	49·4	56·4	63·3	69·8	76·8	83·6	89·7	96·3	103·1	109·4	115·6	121·4
Merc.	...	355·5	349·5	353·3	5 6	21·4	39·6	58·7	77·4	95·2	110·7	121·7	124 2	118·0	113·5	113·5	130·9	146·5	163·7
Jup.	...	73 9	75·2	76·9	78·6	80·5	83·5	84·6	86 8	89·1	91·4	93·6	95·9	98·3	100·5	102·6	104·7	106·7	108·4
Ven.	...	32·9	44·8	56·6	68·3	79·8	91 0	102·2	112 6	122·5	131·9	140·4	147·6	152·7	154·9	153 8	147·8	140·2	138·2
Sat.	...	120·4	120·3	120·2	120·3	120·9	121·5	122·0	122·9	123·9	124·9	126·1	127·3	128·6	129·9	131·2	132·4	133·6	134·8
																	S 9	S 19	S 29
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30			
1920 Mars	...	189·6	186·4	182·7	180·5	179·0	179·0	180·1	182·3	185·6	189·5	194·0	198·7	204·5	210·3	215·9	222·3	228 8	235·3
Merc.	...	332·7	343·5	359·0	16·8	35·7	54·6	73·2	89 5	101·8	106·4	101·3	95·7	99·4	110·3	125·4	142·8	160·4	178·1
Jup.	...	103·8	104·2	104·9	105·9	107·1	108·5	110·3	112·1	114·0	116·2	118·3	120·4	122·6	124·9	127·0	129 2	131·5	133·5
Ven.	...	338·2	350·5	2·9	15·1	27·4	39·6	52·0	64·2	76·4	88·9	101·0	113·2	125·4	137·8	150·0	162·4	174·7	187·1
Sat.	...	134·2	133·9	133·6	133·4	133·8	134·1	134·4	135·2	136·0	136 7	137 9	139·0	140·2	141·4	142·6	143·9	145·2	146·5
																	S 10	S 20	S 30
Eng. date	...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31			
1921 Mars	...	20·8	28 0	35·1	42·2	49 1	56 0	62·8	69 5	76·4	82·9	89·5	96·0	102·5	109·0	115·4	121·7	128·0	134·1
Merc.	...	337·2	354·4	12·9	31·7	50·8	67·1	80·6	87·6	84·5	77·6	79·1	89·3	103·3	121·2	139·3	157·2	173·5	189·0
Jup.	...	135·8	135·2	134·9	135·0	135·2	136·0	136·9	138·0	139·4	141·1	142·8	144·7	146·8	148 9	151·0	153·2	155·4	157·5
Ven.	...	16·2	10 8	4·[illegible]	1·7	3·2	7·1	13·7	21·9	31·1	41·0	51·4	62·2	73·4	84·7	96·4	107·6	120·1	131·9
Sat.	...	147·9	147·4	146·9	146·5	146·5	146·6	146 6	147·2	147 8	148·4	149·4	150·3	151·3	152·5	153 7	154·9	156·2	157·5
1922 Mars	...	239 0	241·3	242·4	242·7	242·1	240·4	236·8	234·7	232·5	231·4	231·3	232·7	235·3	238·7	243·1	248·0	253·5	259·1
Merc.	...	340 2	9 0	27·4	44·8	59·2	67 8	67·1	59·7	59·1	69·6	82·3	99·3	117·4	135·8	153·0	168 8	180·7	185·2
Jup.	...	169 4	168 1	167·0	166·2	165·4	165·1	165·1	165·3	166 1	166·9	168·0	169·1	171·1	172·8	174·7	176·7	178·8	180·9
Ven.	...	15 7	27·9	40·2	52·2	64·4	76·3	88·4	100·3	112·1	123·8	135·3	146·8	158·0	169·2	179·9	190·2	200·0	209·1
Sat.	...	161·3	160·6	160·0	159·4	159·2	159·0	158·9	159·1	159·5	159·9	160·7	161·5	162·3	163·4	164·5	165 6	166·8	168·0
1923 Mars	...	35·5	42·2	49·0	55·7	62·4	69·1	75·7	82·2	88·6	95·3	101·8	108·0	114·6	120·9	127·2	133·6	140·0	146·4
Merc.	...	5·1	22·4	37·6	47·5	48·8	41·8	39·1	46·2	60·4	77·1	95·3	113·9	131·9	148·2	161·8	168·4	166·4	158·9
Jup.	...	203·5	202·3	201·1	199·7	198·5	197·3	196 3	195·7	195·3	195·3	195·5	196·2	197·0	198·1	199·6	201·2	202 9	204 9
Ven.	...	321·7	333·6	345 6	357·6	9·7	21·8	33·9	46·1	58·2	70·4	82·4	94·8	107 0	119·8	131·6	143·8	156·3	168·8
Sat.	...	174·4	173·7	173·0	172·2	171 8	171·4	171·0	171·1	171·3	171·3	171 9	172·5	173·2	174·2	175·2	176·2	177·4	178·6
																	S 9	S 19	S 29
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30			
1924 Mars	...	269·1	275 0	280·7	286·2	291·4	296·5	300·8	304·7	307·7	309·9	310·9	309·9	308·4	305·9	303 4	301·5	301·2	301·7
Merc.	...	15·5	27·0	30·0	23·1	19·5	25·3	38·1	54·5	72·7	91·5	109·9	127·1	141·7	150·3	150·6	143·0	140·9	148·1
Jup.	...	236·9	236·5	235·7	234·8	233·6	232·3	231·0	229·8	228·5	227·5	226·8	226·4	226·3	226·5	227·1	228·0	229·2	230·5
Ven.	...	45·1	55·5	64·9	73·1	80·1	84·4	85·7	83·6	77·6	71·3	68·3	68·9	73·4	80·4	88·6	97·9	108·2	118·9
Sat.	...	187·1	186·3	185·5	184·7	184·2	183·7	183·1	183·0	183·0	182·8	183·2	183·6	184·1	184·9	185·8	186 7	187·8	188·9
																	S 10	S 20	S 30
Eng. date	...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31			
1925 Mars	...	50·1	56·5	62·9	69·3	75·6	81·9	88·3	94·5	101·0	107·4	113·7	120·1	126·3	132·7	139·2	145·4	151·9	158·2
Merc.	...	11·2	6·4	0·6	4·4	16·2	31·9	50·1	68·8	88·0	104·7	121·0	132·2	134·3	127·9	123·5	128·7	140·7	156·1
Jup.	...	268·4	269·1	269·8	269·5	269·2	268·6	267·8	266·6	265·3	263·9	262·5	261 3	260·2	259·5	259·0	258·8	259·0	259·6
Ven.	...	357·2	9·6	21·9	34·2	46·6	58·7	70·9	83·2	95·3	107·5	119·5	131·8	143·7	155·9	167·7	179·8	191·8	203·5
Sat.	...	199·5	198·7	197·9	197·2	196·5	195·8	195·2	194·9	194·7	194·3	194·5	194·7	195·0	195·7	196·4	197·1	198·2	199·2
1926 Mars	...	291·0	298·1	305·2	312·4	319·5	326·4	333·3	339·9	346·4	352·7	358·4	4·0	9·2	13·7	17·5	20·4	21·6	21·9
Merc.	...	342·4	343·6	354·4	9·5	27·2	46·1	65·1	82·4	99·6	112·0	117·0	112·1	105·9	108·8	120·2	135·3	152·3	170 0
Jup.	...	297·9	299·6	301·1	302·2	303·1	303 7	303·9	303·8	303·3	302·6	301·5	300·3	299 0	297·5	296·2	295·1	294·2	293·5
Ven.	...	313·4	323·1	333·4	344·4	355·3	6·8	18·0	29·7	41·7	53·2	65·2	77·0	89·2	101·3	113·5	125·5	137·9	150·3
Sat.	...	211·6	210·9	210·2	209·4	208·6	207 8	207·1	206·7	206·3	205·9	205·9	205·8	205·8	206·3	206·9	207·4	208·3	209·2

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—cont.

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 8	Mr 18	Mr 28	Ap 7
98·4	104·1	108·9	113·5	117·8	121·7	125·0	127·0	127·9	**1916**	128·3	127·2	124·4	121·3	118·2	113·8	110·8	109·1	108·8	109·9
191·8	185·2	180·5	185·3	197·0	212·1	228·7	246·4	263·7		279·1	291·5	296·9	293·2	286·3	287·7	298·2	3.2·9	330·4	348·8
326·3	325·6	324·9	324·4	324·3	324·7	325·3	326·3	327·6		329·2	329·8	332·7	334·8	337·0	339·2	341·6	344·0	346·4	348·8
180·5	193·0	205·6	218·1	231·1	243·7	256·2	268·7	281·0		293·7	306·0	318·2	330·2	342·5	354·5	6·1	17·8	28·8	39·8
85·5	85·6	85·6	85·6	85·2	84·8	84·3	83·5	82·7		81·9	81·1	80·3	79·5	79·1	78·7	78·2	78·4	78·5	78·6
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
209·2	215·9	223·3	230·4	237·5	245·3	252·7	260·3	267·9	**1917**	275·7	283·6	291·2	299·1	306·9	314·8	322·6	330·7	338·5	346·3
164·7	167·2	177·2	191·9	208·6	225·9	243·1	259·1	272·3		279·8	278·4	271·1	269·5	278·1	291·7	308·5	326·8	344·3	3·3
7·8	6·4	5·0	3·8	2·6	1·7	1·0	0·9	0·9		1·4	2·1	3·2	4·4	6·1	7·9	9·7	11·9	14·1	16·4
129·5	140·8	152·5	164·2	176·3	188·3	200·5	212·7	225·0		237·5	250·2	262·5	275·2	288·0	300·0	312·6	325·1	337·6	350·0
99·1	99·4	99·7	100·1	99·9	99·6	99·5	98·8	98·1		97·4	96·5	95·6	94·8	94·2	93·6	92·9	92·8	92·7	92·6
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
113·9	120·1	125·2	130·9	136·1	140·9	145·8	149·9	153·7	**1918**	156·5	158·8	159·9	160·1	159·0	156·1	152·5	148·6	145·2	142·9
157·8	171·8	188·0	205·5	222·8	239·2	253·2	262·8	263·2		256·0	252·5	258·8	271·1	286·9	304·7	323·0	340·9	357·8	11·6
47·0	46·4	45·5	44·3	43·1	40·8	40·3	39·2	38·1		37·3	36·9	36·7	37·0	37·6	38·5	39·6	40·9	42·5	44·3
215·0	226·7	237·8	249·2	260·1	270·5	280·2	289·2	296·8		302·2	304·8	303·7	298·4	292·1	289·1	290·3	294·1	300·8	308·7
111·9	112·5	113·1	113·7	113·8	113·9	113·9	113·4	112·8		112·3	111·5	110·7	110·0	109·2	108·4	107·6	107·2	106·9	106·5
224·5	231·5	238·8	246·0	253·6	261·1	268·7	276·4	284·3	**1919**	292·0	299·8	307·7	315·5	323·2	331·1	338·9	346·6	354·2	1·7
167·7	184·6	202·3	219·0	234·1	244·0	248·2	242·5	236·6		240·2	251·2	267·2	283·3	301·4	319·4	336·1	350·3	359·3	359·0
80·9	81·1	81·8	81·6	81·2	80·3	79·0	78·1	76·8		75·6	74·3	73·2	72·2	71·6	71·3	71·3	71·5	72·3	73·3
161·9	174·4	186·8	199·7	211·9	224·6	237·0	249·8	262·4		275·1	287·6	300·0	312·7	325·3	337·8	350·1	2·4	14·7	26·6
124·2	125·0	125·8	126·7	127·0	127·2	127·6	127·4	127·2		126·9	126·2	125·5	124·7	124·0	123·3	122·5	121·9	121·3	120·7
																Mr 8	Mr 18	Mr 28	Ap 7
127·9	133·9	139·6	145·4	151·1	156·8	162·1	167·4	172·7	**1920**	177·3	181·8	186·0	189·4	192·6	194·6	195·5	195·6	194·1	191·6
181·5	198·7	214·3	226·7	232·5	229·4	221·9	222·3	231·8		245·9	262·4	280·2	297·7	314·8	329·4	339·6	341·4	334·8	331·1
110·0	111·3	112·5	113·4	114·1	114·4	114·4	114·1	113·3		112·4	111·3	109·9	108·6	107·4	106·2	105·2	104·4	104·0	103·9
138·9	142·5	149·1	157·4	166·4	176·7	187·5	198·6	209·9		221·6	234·3	245·9	258·1	270·2	282·6	294·7	307·2	319·4	331·8
136·1	137·1	138·0	139·1	139·6	140·2	140·7	140·7	140·7		140·6	140·1	139·6	139·1	138·3	137·5	136·7	136·0	135·3	134·5
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
242·3	249·4	256·5	263·8	271·2	279·0	286·4	294·1	301·9	**1921**	309·5	317·3	325·0	332·3	340·1	347·6	355·0	2·5	9·4	16·8
194·5	208·1	216·3	215·2	207·9	204·9	212·9	225·8	241·7		258·9	276·5	293·6	301·1	320·4	324·1	318·5	313·1	316·7	328·7
135·5	137·6	139·4	140·9	142·3	143·6	144·5	145·1	145·5		145·5	145·1	144·5	143·6	142·5	141·2	140·0	138·6	137·3	136·3
199·4	211·7	224·8	236·2	248·4	260·5	272·8	284·7	296·6		308·2	319·7	330·8	341·2	351·4	0·5	8·4	14·7	18·0	18·0
147·7	148·8	149·9	150·9	151·7	152·3	153·1	153·3	153·5		153·8	153·4	153·1	152·8	152·1	151·4	150·6	149·9	149·1	148·3
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
140·4	146·7	152·8	158·8	164·9	171·0	176·9	182·6	188·7	**1922**	194·3	200·1	205·4	210·7	216·0	220·9	225·8	230·1	233·9	237·5
199·0	200·8	194·1	189·6	194·5	206·1	221·0	238·2	255·6		272·9	288·6	301·1	306·7	302·7	295·8	297·8	308·0	323·0	340·4
159·7	161·9	164·0	165·9	167·9	169·7	171·2	172·7	173·8		174·7	175·4	175·7	175·7	175·3	174·7	173·8	172·6	171·5	170·1
143·6	156·4	168·6	181·0	193·3	204·7	218·3	230·9	242·4		256·1	268·7	281·5	294·1	306·6	318·1	331·6	344·2	356·6	9·2
158·7	159·8	161·1	162·1	163·0	163·9	164·8	165·2	165·6		166·0	165·9	165·9	165·8	165·2	164·6	164·0	163·2	162·4	161·6
265·2	271·7	278·3	285·2	292·2	299·2	306·5	313·6	320·8	**1923**	328·1	335·2	342·6	349·7	356·9	3·8	10·9	18·0	24·8	31·7
180·5	174·0	176·3	186·6	201·1	217·8	235·0	252·2	268·4		281·6	289·3	287·8	280·3	279·2	287·4	301·4	318·4	336·6	355·4
183·1	185·3	187·5	189·6	191·8	193·9	195·9	197·9	199·6		201·2	202·7	203·9	204·8	205·4	205·9	205·9	205·5	205·0	204·0
216·5	222·5	225·8	225·2	221·2	215·1	210·8	210·3	214·0		220·2	228·2	237·5	247·4	258·1	268·9	280·3	291·7	303·6	315·3
169·3	170·5	171·7	172·9	173·9	174·9	175·9	176·5	177·1		177·8	177·9	178·1	178·2	177·8	177·4	177·1	176·3	175·5	174·8
																Mr 8	Mr 18	Mr 28	Ap 7
152·7	159·0	165·3	171·5	177·9	184·2	190·5	196·9	203·3	**1924**	209·5	215·9	222·2	228·5	234·9	241·2	247·4	253·7	259·8	266·0
158·4	166·8	181·3	197·4	214·6	231·9	248·3	262·5	271·8		272·6	265·6	262·0	267·6	280·8	296·7	314·8	333·1	351·2	7·9
206·9	208·9	211·1	213·3	215·5	217·7	220·0	222·2	224·3		226·4	228·4	230·2	231·9	233·4	234·7	235·6	236·5	236·9	236·9
181·2	193·5	206·2	218·6	231·1	243·7	256·2	268·7	281·0		293·7	306·0	318·2	330·2	342·5	354·5	6·1	17·8	28·8	39·8
179·7	180·9	182·1	183·4	184·5	185·6	186·7	187·4	188·2		189·0	189·1	189·6	190·0	189·8	189·5	189·4	188·8	188·2	187·6
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
303·9	306·9	311·0	315·3	320·4	325·8	331·2	337·1	343·2	**1925**	349·3	355·6	1·9	8·2	14·7	20·9	27·4	33·8	40·3	46·6
160·9	176·9	194·0	211·5	228·0	242·9	254·1	257·2	251·3		245·9	249·7	260·5	275·6	292·8	310·9	329·0	345·9	0·5	9·8
232·1	233·8	235·8	237·9	239·9	242·2	244·4	246·7	249·0		251·3	253·6	255·7	257·9	259·9	261·8	263·7	265·3	266·6	267·9
129·8	141·2	152·8	164·7	176·4	188·6	200·7	213·0	225·4		237·8	250·5	263·0	275·4	287·9	300·5	313·1	325·5	338·1	350·5
190·0	191·2	192·4	193·6	194·7	195·8	197·0	197·9	198·8		199·7	200·2	200·7	201·3	201·3	201·4	201·4	200·8	200·3	199·8
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
164·8	171·2	177·6	184·3	190·8	197·5	204·0	210·6	217·5	**1926**	224·3	231·2	238·1	244·9	252·0	258·9	266·0	273·1	280·2	287·2
172·3	189·9	208·2	223·5	236·0	241·3	238·5	231·0	231·2		241·0	255·1	271·6	289·3	307·3	324·5	339·5	350·1	352·1	345·5
260·4	261·6	262·9	264·5	266·2	268·2	270·3	272·4	274·4		277·0	279·3	281·8	284·0	286·4	288·6	290·9	293·1	295·1	297·1
215·3	226·8	238·3	249·4	260·2	270·5	280·1	288·8	296·0		300·9	302·3	300·3	295·0	289·4	286·8	288·5	293·0	299·8	308·4
200·2	201·4	202·6	203·7	204·9	206·1	207·2	208·2	209·2		210·2	210·9	211·5	212·3	212·5	212·7	212·9	212·6	212·3	211·9
20·7	18·3	15·7	12·6	11·5	10·7	10·8	12·3	14·7	**1927**	17·8	21·1	25·5	29·9	34·7	40·0	45·0	50·7	56·4	61·9
187·6	203·9	217·3	225·1	224·5	216·8	214·6	221·6	235·0		251·1	268·3	286·1	303·4	318·7	330·3	334·2	328·9	323·2	327·2
293·1	293·2	293·6	294·3	295·4	296·6	298·1	300·0	301·8		303·8	306·0	308·3	310·6	313·0	315·5	317·9	320·2	322·6	325·0
162·7	175·0	187·4	200·1	212·5	225·3	237·8	250·4	263·1		275·6	288·4	300·7	313·5	326·0	338·4	350·7	2·9	15·2	27·2
210·1	211·2	212·3	213·5	214·7	215·9	217·0	218·1	219·2		220·3	221·2	222·0	228·8	223·2	223·6	223·9	224·1	224·2	223·6

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle.

Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date ...		Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1927	Mars. ...	65·0	70·9	76·8	82·7	88·8	94·9	100·9	107·1	113·2	119·4	125·8	131·9	138·3	144·6	151·0	157·5	163·8	170·5
	Merc. ...	332·9	347·1	4·5	23·2	42·2	60·8	77 7	91 3	98·2	95·6	88·6	89·3	99·5	114·1	131·1	148·8	166·5	183·5
	Jup. ...	326·1	328·4	330·5	332·4	334·3	335·9	337·2	338·3	339·2	339·6	339·8	339·6	339·0	338·1	337·1	335·8	334·4	332·9
	Ven. ...	33·5	45·2	57·0	68·7	80·1	91·2	102·3	112·6	122·6	131·8	140·2	147 0	151·5	152·0	150·0	144·0	138·6	135·9
	Sat. ...	223·4	222·7	222·1	221·5	220·7	219·9	219·1	218·5	217·9	217·3	217·1	216·9	216·8	217·1	217·4	217·8	218·6	219·4
Eng. date ...		Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1928	Mars ...	309·9	317·7	325·2	332·9	340·4	347·9	355·1	2·4	9·9	16·7	23·6	30·3	36·6	42·7	48·7	54·2	58·4	64·0
	Merc. ...	342·1	0·2	19 1	37·9	55·3	69 9	78 3	77 9	70 7	69·6	79·3	92·5	109·3	126·2	145·6	162·7	178·4	190·1
	Jup. ...	353·8	356·2	358·6	1·0	3·3	5·5	7·5	9 6	11·3	12·8	14·2	15·2	15·9	16·4	16·3	16·0	15·3	14·4
	Ven. ...	338·2	350·5	2·9	15·1	27·4	39 6	52·0	64·2	76·4	88·9	101·0	113·2	125·4	137·8	150·0	162·4	174·7	187·1
	Sat. ...	234·8	234·5	234·3	233·2	232·4	231·6	230·9	230·2	229·5	228·7	228·4	228·0	227·7	227·9	228·1	228·2	228·9	229·5
Eng. date ...		Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1929	Mars ...	81·4	86·4	91·6	97·1	102·5	108·2	114·1	119·9	126·0	132·0	138·1	144·4	150·7	157 0	163·4	169·8	176·4	183·0
	Merc. ...	356·5	15·2	32·7	48·0	58·3	60·0	53·1	50·1	57·2	70·8	87·4	105·3	123·7	141·6	157·8	171·1	178·1	175·6
	Jup. ...	21·5	23·8	26·2	28·6	31·0	33·4	35·8	38·1	40·3	42·4	44·4	46·2	47·9	49·4	50·5	51·4	51·9	52·1
	Ven. ...	12·5	6·6	1·3	359·5	1·4	6·2	13·3	21·7	31·1	41·1	51·7	62·5	73·7	85·2	96·9	108·2	120·5	132 6
	Sat. ...	246·1	245 8	245·5	245·1	244·4	243·7	242·9	242 1	241·3	240·6	240·1	239·6	239·1	239·0	238·9	238·9	239·4	239·9
1930	Mars ...	327·5	335·3	343·0	350·7	358·3	5 9	13·3	20·6	27·9	35·1	42·7	48·8	55·4	62 0	68·5	74·4	80 5	86·2
	Merc. ...	10·5	26·3	37 8	41·1	35 3	30·6	35·9	48·8	65·0	83·0	101·7	120·0	137·0	151·4	160·4	160·7	153·1	150·5
	Jup. ...	49·1	51·1	53·2	55·4	57·7	59·9	62·4	61·7	67·0	69·4	71·7	73·8	76·0	78·0	79·8	81·4	83·0	84·3
	Ven. ...	16·3	28·5	40·8	52 9	65·1	77·1	89·1	100·9	112·7	124·3	135·8	147·3	158·5	169·5	180·3	190·4	199·9	208·7
	Sat. ...	257·1	256·9	256·7	256·6	255·9	255·3	254·7	254·0	253·2	252·4	251·8	251·2	250·5	250·3	250·1	249·8	250·1	250·4
1931	Mars ...	101·4	104·7	108·7	113·1	117·8	123·0	128·0	134·0	139·6	145·3	151·5	157·5	163·8	170·1	176·5	183·1	189·7	196·6
	Merc. ...	16·7	22·3	17·5	11·5	14·5	26·5	42·3	60·3	79·3	97·7	115·5	130·9	142·0	144·5	138·4	133·2	137·9	150·1
	Jup. ...	77·7	79·0	80·5	82·2	84·0	86·1	88·0	90·2	92·5	94·8	97·0	99·3	101·6	103·7	105·9	108·1	110·1	111·9
	Ven. ...	322·2	334·1	346·1	358·1	10·2	22·3	34·5	46·6	58·8	70·9	83·0	95·3	107·5	119·8	132·1	144·4	156·9	169·4
	Sat. ...	268·0	268·1	268·2	268·2	267·7	267·2	266·8	266·0	265·2	264·4	263·7	263·0	262·3	261·9	261·5	261·1	261·2	261·3
Eng. date ...		Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1932	Mars ...	344·1	351·9	359·4	7·1	14·6	22·0	29·4	36·5	43·8	50·7	57·6	64·3	70·9	77·5	84·1	90·3	96·5	102·2
	Merc. ...	0·0	352·8	354·4	4·8	19·9	37·6	55·7	74·6	92·5	109·3	121·2	126·7	122·5	116·1	119·1	130·6	144·9	161·8
	Jup. ...	108·1	108·3	108·9	109 7	110·9	112·2	113·8	115·6	117·4	119·4	121·6	123·8	125·9	128·1	130·4	132·6	134·7	136·9
	Ven. ...	45·4	55·5	64·8	72·7	79·3	82·9	83·4	79·7	73·8	68·4	66·1	67·6	72·4	80·0	88·4	97·9	108·3	119·1
	Sat. ...	278·8	279·1	279·4	279·6	279·3	279·0	278·8	278·1	277·4	276·7	276·0	275·2	274·4	273·8	273·2	272·6	272·5	272·4
Eng. date ...		Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1933	Mars ...	127·9	128·7	130·7	133·1	136·7	140·6	145·1	150·0	155·2	160·6	166·4	172·2	178·4	184·7	191·1	197·6	204·5	211·2
	Merc. ...	334·8	343 2	357·4	15·1	33·7	52·7	71·2	88·2	101·5	108·8	106·2	99·2	99·8	109·5	123·9	140·7	158·5	176·1
	Jup. ...	140·4	139·6	139·2	138·9	139·3	139·8	140·6	141 7	143·0	144·4	146·2	148·1	150·0	152·1	154·2	156·4	158·2	160·8
	Ven. ...	351·8	10·2	22·5	34·9	47·2	59·4	71·7	83·8	95·9	108·1	120·2	132·4	144·4	156·3	168·4	180·4	192 3	203·9
	Sat. ...	289·8	290·2	290·6	291·1	291·0	290 9	290·8	290·2	289·6	289·1	288·3	287·5	286·8	286·1	285·4	284·7	284·4	284·1
1934	Mars ...	359·7	7·4	15·0	22·3	29·7	36·7	43·9	51·0	57·9	64·8	71·6	78·1	84·9	91·2	97·8	104·1	110·3	116·5
	Merc. ...	335·7	352·4	10·4	28·4	48·3	65·6	80·4	89·5	89·2	81·8	80·2	88·5	102·4	119·2	137 0	154·9	172·2	187·6
	Jup. ...	174·1	172·8	171·5	170·7	169·9	169·3	169·2	169·4	169·8	170·6	171·7	173·0	174·4	176 2	178·0	179·9	182·1	184·1
	Ven. ...	313·4	323·1	333·8	344·5	355·7	7·0	18·4	30·2	41·9	53·7	65·7	77·5	89·7	101·9	113·9	126·1	138·4	150·8
	Sat. ...	300 6	301 2	301·8	302·5	302·6	302·7	302·9	302·5	302·1	301·8	301·1	300·4	299·6	298·8	298·0	297·3	296·8	296·3
1935	Mars ...	168·4	165·3	163·6	162·8	163·2	164·9	167·6	171·1	175·0	179·6	184·7	190·1	196 0	201·8	208·0	214·7	221·3	228·1
	Merc. ...	348·1	6·7	25·5	43·2	58·8	69·5	71·2	64 6	61·0	67·9	81·0	97·3	115·2	133·5	151·4	166·6	180·6	187·4
	Jup. ...	208·2	207·1	205·8	204 5	203·1	202·0	201·0	200·1	199·6	199 4	199·5	200 0	200·8	201 9	203·1	204·7	206·3	208 2
	Ven. ...	34·1	45·8	57·5	69·1	80·5	91·7	102·4	112 9	122·6	131·6	139·8	145·9	149·2	149·6	146·4	140·6	135·0	133·4
	Sat. ...	311·5	312·3	313·1	314·0	314·4	314·8	315·1	314·9	314·7	314·6	314·0	313·4	312·8	312·0	311·2	310 3	309·6	308·9
Eng. date ...		Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	Au 10	Au 20	Au 30	S 9	S 19	S 29
1936	Mars ...	14·9	22·1	29·4	36·5	43·5	50·7	57·5	64·4	71 2	77·8	84·5	91·2	97·5	104·1	110·4	116·9	123·3	129·2
	Merc. ...	2·7	20 8	36·6	48 5	52·3	46·4	41·7	46·8	58·9	75·1	93·0	111·6	129·7	146·7	161·1	170·1	170·1	163·2
	Jup. ...	241·3	241·2	240·5	239·7	238·7	237·4	236·0	234·6	233·4	232·3	231·4	230·9	230·7	230·7	231·3	231 9	232·9	234·2
	Ven. ...	339·3	351·6	3·9	16·8	28·5	40·8	53 2	65·5	77·6	89·9	102·2	114·3	126·7	138·9	151·2	163 6	175·8	188·1
	Sat. ...	322·5	323·5	324 5	325·5	326·1	326·7	327·3	327·4	327·5	327·5	327·0	326·5	326·1	325.3	324·5	323·8	323·0	322·2
Eng. date ...		Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1937	Mars ...	223·3	222·0	220·2	217 8	214 8	211 6	209·7	208 3	208·9	210·2	212·8	216·4	220·5	225·4	230·5	236·3	242·4	242·7
	Merc. ...	14·6	27·5	32·9	28·6	22·5	25 7	37·1	52·8	70·7	89·5	107·9	125·5	140·7	151·5	154·1	147·9	142·9	147·9
	Jup. ...	272·6	273·5	274·0	274·1	274·1	273·6	272·7	271·7	270·5	269·1	267·8	266·5	265·4	264·4	263·8	263·5	263·5	263·8
	Ven. ...	9·0	2·4	357·9	356·0	0 0	5·4	12·9	21·7	31 1	41·5	52·0	63·2	74·2	85.8	97·3	108·9	121 3	133 1
	Sat. ...	333·9	335·0	336·1	337·3	338·1	338·9	339·7	340·0	340·3	340·6	340·4	340·2	339·9	339·2	338·5	337·8	337·0	336·2
1938	Mars ...	29·7	36·8	43 5	50·3	57·2	64·0	70·7	77 3	83·7	90·4	96·9	103·4	109·8	116·2	122·6	128·9	135·2	141·7
	Merc. ...	13·4	11·2	4·2	4·9	15·2	30·3	48·1	66 8	85·7	103·6	119·8	132·4	137·3	133·0	126·4	128·7	139·8	154·3
	Jup. ...	301 9	303·6	305·2	306 5	307·5	308·3	308·6	308·7	308·4	307·8	307·0	305·8	304·4	303·1	301·8	300·5	299·4	298·7
	Ven. ...	16·9	29·1	41·5	53·7	65·7	77·7	89·5	101·5	113·2	124·9	136·3	147·7	159·0	169·9	180·5	190·4	200·9	208·0
	Sat. ...	345·3	346 5	347·7	349 0	350·0	351·0	352·0	352·6	353·2	353·7	353·7	353·7	353·7	353·2	352·7	352·1	351·3	350·5

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D.1999
Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 8	Mr 18	Mr 28	Ap 7
177·1	183·6	190·3	197·1	203·8	210·8	217·6	224·7	231·8	**1928**	238·9	246·1	253·4	260·7	268·1	275·8	283·1	290·6	298·2	306·0
198·2	208·0	209·9	202·5	198·5	203·0	215·2	230·6	247·6		264·9	282·4	298·1	310·6	316·5	313·1	306·4	307·3	318·2	333·1
331·7	330·6	329·7	329·3	329·0	329·2	329·8	330·6	331·7		333·1	331·8	334·6	338·5	340·8	343·0	345·3	347·7	350·1	352·3
136·6	141·8	148·7	157·2	166·7	177·1	187·6	199·0	210·5		222·2	234·6	246·4	258·5	271·8	283·1	295·2	307·6	320·0	332·2
220·1	221·2	222·2	223·2	224·4	225·7	226·8	227·9	229·0		230·2	231·1	232·1	233·0	233·6	234·1	234·7	234·8	234·9	234·9
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
63·3	71·6	74·3	75·8	76·6	75·6	73·5	70·4	66·8	**1929**	63·2	61·1	59·9	60·1	61·4	63·6	66·9	70·4	74·7	79·0
194·5	189·6	183·2	185·6	196·2	210·5	226·9	244·4	261·6		277·4	291·1	298·7	297·3	289·8	288·6	297·5	310·7	328·3	346·8
13·2	11·9	10·5	9·1	7·9	6·9	6·3	5·6	5·6		5·9	6·5	7·4	8·6	10·1	11·7	13·6	15·7	17·8	20·0
199·4	211·7	224·3	236·2	248·4	260·5	272·8	284·7	296·6		308·2	319·7	330·8	341·2	351·4	0·5	8·4	14·7	18·0	18·0
230·1	231·1	232·1	233·1	234·3	235·5	236·6	237·7	238·8		240·0	241·0	242·0	243·3	243·8	244·5	245·2	245·5	245·8	246·0
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
189·8	196·6	203·4	210·5	217·5	224·7	231·9	239·1	246·5	**1930**	254·0	261·4	268·9	276·6	284·4	292·1	300·0	307·7	315·5	323·4
168·3	167·1	176·7	190·3	206·5	223·9	241·0	257·6	271·6		281·0	282·1	274·8	271·4	277·5	290·4	306·5	324·4	343·1	1·0
52·0	51·5	50·7	49·6	48·4	47·1	45·7	44·4	43·3		42·4	41·7	41·4	41·5	41·8	42·6	43·6	44·9	46·5	48·1
143·2	156·8	167·2	181·6	193·9	206·4	219·0	231·5	244·3		256·8	269·6	282·1	294·7	307·4	319·9	332·4	344·8	357·3	9·8
240·3	241·2	242·1	243·0	244·1	245·2	246·3	247·5	248·7		249·8	250·9	252·0	253·1	254·0	254·9	255·7	256·1	256·5	257·0
91·6	96·6	101·3	105·4	109·0	111·9	114·2	115·1	115·3	**1931**	113·9	111·3	107·8	103·8	100·4	97·6	96·4	96·4	97·7	99·9
157·4	170·3	186·3	203·4	220·8	237·3	252·2	263·1	266·4		260·8	255·0	258·5	270·0	285·3	302·5	320·7	338·9	356·2	10·9
85·2	86·0	86·3	86·3	86·0	85·4	84·4	83·2	82·0		80·6	79·3	78·1	77·0	76·2	75·8	75·6	75·8	76·3	77·2
215·9	221·0	223·5	222·1	217·1	211·1	207·7	208·5	212·9		219·6	227·8	237·5	247·4	258·3	269·3	280·8	292·3	304·1	315·8
250·7	251·4	252·1	252·9	253·9	254·9	256·0	257·2	258·4		259·6	260·8	262·0	263·1	264·0	264·9	265·9	266·5	267·1	267·8
																Mr 8	Mr 18	Mr 28	Ap 7
204·3	210·2	217·4	224·4	231·7	239·0	246·4	254·2	261·7	**1932**	269·4	277·1	284·9	292·7	300·6	308·5	316·3	324·3	332·1	340·0
165·6	182·7	200·1	217·1	232·5	244·9	250·5	247·1	239·8		240·6	250·4	264·5	281·1	299·0	317·1	334·2	339·6	0·5	3·0
113·7	115·2	116·4	117·5	118·3	118·7	118·7	118·5	118·0		117·1	116·1	114·8	113·5	112·2	111·0	109·8	108·9	108·4	108·1
181·6	194·1	206·7	219·1	231·6	244·2	256·7	269·2	281·8		294·2	306·6	318·7	331·0	343·0	354·8	6·4	17·9	29·2	39·9
261·4	261·9	262·4	263·0	264·0	265·0	265·9	267·1	268·3		269·4	270·5	271·8	272·9	274·0	275·1	276·2	277·0	277·8	278·5
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
108·3	114·1	119·5	124·7	129·5	134·2	138·2	141·7	144·7	**1933**	146·6	147·7	147·3	145·7	143·1	139·0	135·7	132·3	129·3	128·4
178·5	196·8	212·9	226·2	234·3	233·5	226·3	223·2	230·8		244·3	260·3	277·9	295·7	313·1	328·6	340·1	344·8	339·5	333·6
139·0	140·9	142·8	144·5	146·0	147·2	148·4	149·7	149·6		149·7	149·5	149·0	148·3	147·2	145·9	144·7	143·4	142·1	140·9
130·1	141·5	153·2	165·0	177·0	189·0	201·3	213·5	225·9		238·3	251·0	263·6	276·0	288·6	301·0	313·7	326·0	338·6	351·0
272·3	272·7	273·1	273·5	274·4	275·3	276·1	276·9	277·9		278·4	279·6	280·8	281·9	283·0	284·2	285·4	286·5	287·5	288·5
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
218·1	225·3	232·4	239·8	247·1	254·8	262·4	270·0	277·8	**1934**	285·5	293·4	301·4	309·2	317·0	324·8	332·8	340·6	348·0	356·0
193·0	207·4	217·3	218·9	212·1	207·5	212·5	224·6	239·8		257·0	274·5	292·0	307·8	320·5	326·7	323·1	316·4	317·7	328·1
163·0	165·1	167·2	169·2	171·2	173·0	174·7	176·2	177·5		178·6	179·3	179·7	179·9	179·7	179·1	178·2	177·3	176·1	174·7
215·7	227·3	238·6	249·6	260·2	270·5	279·9	288·3	295·0		299·1	300·0	296·6	291·1	285·6	284·4	286·8	292·1	299·4	308·3
283·8	284·0	284·2	284·5	285·2	286·9	286·7	287·7	288·7		289·8	291·0	292·2	293·4	294·6	295·8	296·9	298·0	299·1	300·1
122·5	128·4	134·2	139·9	145·5	150·8	156·1	160·7	165·5	**1935**	169·9	173·5	176·8	179·3	180·5	181·0	180·2	177·8	174·3	170·2
199·3	203·6	198·7	192·4	194·6	204·9	219·5	236·2	253·6		270·9	287·3	300·7	308·4	307·3	299·9	298·8	307·0	321·4	338·4
186·3	188·6	190·7	192·8	195·0	197·2	199·3	201·2	203·1		204·8	206·3	207·7	208·7	209·4	209·9	210·1	209·9	209·4	208·7
163·2	175·7	188·0	200·6	213·2	225·8	238·3	250·9	263·7		276·2	288·9	301·6	314·1	326·5	338·9	351·3	3·4	15·7	27·7
295·8	295·8	295·8	295·8	296·3	296·8	297·4	298·4	299·4		300·3	301·5	302·7	303·8	305·0	306·2	307·5	308·7	309·9	311·0
																Mr 8	Mr 18	Mr 28	Ap 7
235·1	242·1	249·5	256·7	264·2	271·6	279·3	287·1	294·7	**1936**	302·5	310·3	318·0	325·6	333·4	341·2	348·6	356·1	3·8	11·0
185·5	177·5	176·9	185·9	199·5	215·8	233·0	250·5	266·8		281·1	290·8	291·4	284·7	280·0	287·4	300·2	316·3	334·3	353·0
210·2	212·3	214·4	216·6	218·9	221·1	223·2	225·6	227·7		229·8	231·7	233·8	235·5	237·1	238·5	239·6	240·4	241·1	241·3
135·2	140·9	148·3	157·1	166·8	177·1	188·0	199·5	210·9		222·7	234·9	246·7	258·9	271·3	283·5	295·8	308·2	320·5	332·8
308·3	308·1	307·9	307·7	308·0	308·3	308·7	309·5	310·3		311·2	312·3	313·4	314·5	315·7	316·9	318·2	319·4	320·6	321·9
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
135·5	141·5	147·7	153·6	159·6	165·4	171·2	176·9	182·4	**1937**	188·0	193·3	198·1	203·1	209·5	211·6	215·3	218·5	220·7	222·1
159·8	166·9	179·6	195·3	212·4	229·9	246·4	261·4	272·5		275·7	269·7	264·4	263·2	279·3	294·8	312·3	330·7	349·0	6·0
235·8	237·4	239·3	241·4	243·4	245·6	247·8	250·2	252·4		254·6	257·0	259·2	261·4	263·6	265·5	267·4	269·1	270·6	271·9
200·3	212·7	224·9	237·2	249·3	261·5	273·5	285·5	297·4		308·9	320·2	331·1	341·5	351·0	359·6	6·9	12·0	13·7	12·3
321·5	321·1	320·7	320·2	320·3	320·4	320·5	321·1	321·7		322·4	323·5	324·6	325·6	326·8	328·0	329·2	330·5	331·8	333·0
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
255·3	262·1	269·1	276·2	283·4	290·9	298·2	305·7	313·1	**1938**	320·5	328·0	335·4	342·8	350·2	357·3	4·7	11·8	18·9	26·0
159·6	174·9	192·0	209·4	226·4	241·8	253·9	259·6	256·0		248·9	250·0	259·6	273·9	291·0	308·8	327·2	344·4	359·8	10·9
264·6	265·5	266·7	268·4	270·0	271·9	274·0	276·1	278·2		280·6	282·9	285·2	287·6	290·0	292·3	294·6	296·9	298·9	300·9
145·4	157·4	169·9	183·2	194·7	207·1	219·6	232·1	244·8		257·5	270·2	282·8	295·3	308·1	320·5	333·1	345·4	357·9	10·4
335·4	334·8	334·2	333·6	333·5	333·4	333·2	333·7	334·2		334·7	335·5	336·3	337·1	338·3	339·5	340·7	342·0	343·3	344·6
147·8	154·2	160·3	166·6	172·8	179·1	185·3	191·3	197·4	**1939**	203·7	209·8	215·9	222·7	227·9	233·8	239·6	245·2	250·8	256·1
171·1	188·6	206·1	222·1	235·6	243·1	242·2	234·7	232·5		239·9	253·7	269·9	287·4	305·3	323·0	338·6	350·7	355·1	350·5
298·2	295·0	298·2	298·8	299·6	300·9	302·2	303·8	305·7		307·7	309·8	312·0	314·4	316·8	319·1	321·6	324·0	326·4	328·7
215·0	219·6	220·7	218·7	212·9	207·5	204·9	206·6	211·9		218·8	227·8	237·5	247·7	258·6	269·7	281·1	292·7	304·5	316·5
349·8	349·0	348·2	347·4	347·0	346·6	346·3	346·5	346·7		347·0	347·7	348·4	349·1	350·2	351·3	352·4	353·7	355·0	356·3

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Savti.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1939 Mars	...	258·7	263·6	268·3	272·5	276·2	279·1	280·8	281·9	282·0	280·5	277·7	275·6	269·8	272·9	272·3	274·2	277·0	280·9
Merc.	...	346·6	344·9	353·0	7·7	25·1	43·7	62·8	81·1	98·3	112·0	119·3	117·3	109·7	109·6	119·4	133·5	150·2	167·9
Jup.	...	330·0	332·2	334·4	336·4	338·4	340·0	341·6	342·8	343·8	344·5	344·8	344·7	344·4	343·6	342·6	341·4	340·1	338·7
Ven.	...	322·7	334·6	346·6	358·7	10·9	22·9	35·1	47·2	59·4	71·5	83·6	96·0	108·3	120·5	132·7	145·2	157·5	170·0
Sat.	...	356·9	358·2	359·5	0·8	2·0	3·2	4·3	5·1	5·9	6·7	7·0	7·3	7·6	7·3	7·0	6·7	6·0	5·3
Eng. date	...	Ap 12	Ap 22	My 2	My 12	My 22	Je 1	Je 11	Je 21	Jl 1	Jl 11	Jl 21	Jl 31	An 10	An 20	Au 30	S 9	S 19	S 29
1940 Mars	...	44·4	50·9	57·4	64·0	70·5	76·9	83·4	89·6	96·3	102·6	109·0	115·2	121·6	128·0	134·4	140·9	147·1	153·5
Merc.	...	332·8	345·6	2·5	20·8	40·0	58·8	76·1	90·9	100·2	99·7	92·5	90·6	98·8	112·4	129·0	146·5	164·5	181·7
Jup.	...	357·6	0·0	2·4	4·8	7·0	9·4	11·5	13·5	15·5	17·0	18·5	19·7	20·0	21·1	21·3	21·2	20·7	19·9
Ven.	...	45·6	55·6	64·6	72·2	78·0	80·7	80·2	76·6	69·9	65·2	63·8	66·7	71·5	79·6	88·7	98·3	108·5	119·2
Sat.	...	8·8	10·1	11·4	12·7	14·0	15·3	16·6	17·6	18·6	19·6	20·2	20·8	21·4	21·4	21·3	21·3	20·8	20·3
Eng. date	...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1941 Mars	...	283·0	289·0	296·4	303·2	309·8	316·3	322·5	328·5	334·3	339·8	344·6	348·8	352·1	354·5	355·7	355·5	353·9	351·2
Merc.	...	340·1	358·2	16·9	35·8	53·8	69·2	80·0	82·0	75·4	71·8	78·1	91·0	107·5	125·0	143·3	160·8	177·0	189·9
Jup.	...	25·3	27·5	29·9	32·3	34·7	37·1	39·4	41·8	44·1	46·2	48·3	50·3	51·9	53·5	54·7	55·8	56·5	56·8
Ven.	...	358·3	10·8	23·0	35·4	47·7	59·9	72·3	84·4	96·5	108·7	120·7	132·9	144·9	156·9	168·9	180·9	192·7	204·3
Sat.	...	21·1	22·4	23·7	25·1	26·4	27·7	29·1	30·3	31·5	32·6	33·4	34·2	34·9	35·2	35·5	35·8	35·5	35·2
1942 Mars	...	59·1	65·2	71·3	77·4	83·5	89·7	96·0	102·2	108·3	114·7	121·0	127·3	133·6	139·9	146·3	152·7	159·2	165·6
Merc.	...	354·4	12·9	31·2	47·2	59·3	63·4	58·1	52·6	57·1	69·4	85·4	103·3	121·7	139·9	156·4	170·7	179·4	179·7
Jup.	...	53·0	54·4	56·9	59·1	61·3	63·5	65·4	68·2	70·6	72·9	75·2	77·4	79·5	81·6	83·6	85·3	86·9	88·3
Ven.	...	313·2	328·2	333·8	344·7	356·2	7·4	19·1	30·8	42·5	54·4	66·3	78·2	-90·3	102·4	114·4	126·7	139·1	151·4
Sat.	...	33·5	34·8	36·1	37·5	38·8	40·1	41·5	42·8	44·1	45·3	46·4	47·5	48·7	49·1	49·1	50·6	50·0	49·9
1943 Mars	...	302·7	310·1	317·7	325·1	332·7	340·0	347·5	354·4	1·5	8·4	14·9	21·2	27·4	33·2	38·8	43·7	48·0	51·9
Merc.	...	8·5	25·1	38·3	45·0	40·4	33·9	36·6	47·5	63·0	81·0	99·8	117·8	135·4	150·6	161·4	164·0	157·9	152·8
Jup.	...	81·8	83·0	84·3	85·8	87·6	89·5	91·6	93·7	95·9	98·2	100·5	102·6	104·9	107·2	109·4	111·5	113·6	115·5
Ven.	...	34·5	46·3	58·1	69·6	81·0	92·0	102·5	113·0	122·8	131·5	139·2	144·8	147·4	147·5	143·6	136·7	132·2	131·4
Sat.	...	46·4	47·7	49·0	50·2	51·5	52·8	54·1	55·4	56·7	58·1	59·3	60·5	61·7	62·5	63·3	64·1	64·4	64·7
1944 Mars	...	74·8	80·2	85·7	91·4	97·2	103·0	108·9	114·9	120·8	126·9	133·1	139·4	145·7	152·1	158·4	165·0	174·4	178·0
Merc.	...	16·7	24·3	22·3	15·1	15·8	25·7	40·7	58·4	77·1	95·4	113·4	129·7	142·4	147·2	142·6	136·3	138·7	148·9
Jup.	...	112·4	112·5	112·9	113·7	114·8	116·0	117·6	119·2	121·0	123·0	125·1	127·2	129·6	131·6	133·8	136·0	138·2	140·4
Ven.	...	339·9	352·2	4·6	17·1	29·4	41·6	53·8	66·0	78·4	90·6	102·8	115·2	127·3	139·6	151·8	164·2	176·4	188·9
Sat.	...	59·5	60·6	61·7	62·8	64·1	65·4	66·7	68·0	69·4	70·8	72·1	73·4	74·6	75·6	76·6	77·6	78·1	78·6
Eng. date	...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1945 Mars	...	320·7	328·5	336·3	344·1	351·5	359·1	6·6	13·9	21·1	28·2	35·3	41·9	48·7	55·2	61·3	67·4	73·1	78·6
Merc.	...	4·7	357·1	355·7	3·9	18·4	35·6	54·0	73·2	91·5	108·4	121·9	129·4	127·1	119·7	120·0	128·8	143·4	160·6
Jup.	...	145·0	144·1	143·6	143·2	143·3	143·7	144·4	145·3	146·6	148·0	149·6	151·4	153·4	155·3	157·4	159·6	161·7	163·9
Ven.	...	5·2	358·8	354·9	355·1	358·8	4·8	12·7	21·7	31·3	41·5	52·4	63·3	74·7	86·2	98·0	108·8	121·7	133·7
Sat.	...	72·8	73·7	74·6	75·5	76·7	77·9	79·1	80·5	81·9	83·2	84·5	85·8	87·2	88·3	89·6	90·6	91·4	92·2
1946 Mars	...	93·1	97·2	101·7	106·5	111·9	117·0	122·7	128·1	134·0	140·1	145·9	152·2	158·5	164·7	171·1	177·7	184·5	191·1
Merc.	...	336·4	342·5	355·9	12·7	31·3	50·4	69·1	86·6	101·2	110·5	110·9	103·5	101·1	108·6	122·4	138·7	156·3	174·1
Jup.	...	178·8	177·5	176·2	175·2	174·4	173·7	173·3	173·4	173·7	174·4	175·3	176·5	177·9	179·5	181·4	183·3	185·2	187·4
Ven.	...	17·5	29·8	42·1	54·1	66·3	78·2	90·1	101·8	113·7	125·2	136·8	148·1	159·1	169·9	180·3	190·4	199·4	207·4
Sat.	...	86·3	87·0	87·7	88·3	89·4	90·5	91·6	92·6	94·2	95·4	96·7	98·0	99·4	100·7	102·0	103·2	104·2	105·2
1947 Mars	...	337·7	345·4	353·2	0·9	8·5	16·0	23·3	30·6	37·7	44·9	51·6	58·4	65·3	71·7	78·1	84·3	90·5	96·6
Merc.	...	334·4	350·3	8·3	27·1	48·1	64·1	79·7	90·8	93·0	86·4	82·4	88·6	101·0	117·2	134·7	152·9	170·6	186·5
Jup.	...	212·9	211·8	210·6	209·3	207·9	206·6	205·7	204·7	204·0	203·7	203·7	204·0	204·7	205·6	206·8	208·2	209·9	211·6
Ven.	...	323·2	335·2	347·3	359·4	11·4	23·7	35·8	48·0	60·1	72·2	84·5	96·6	108·9	121·2	133·5	145·9	158·3	170·7
at.	...	100·1	100·5	100·9	101·3	102·2	103·1	103·9	105·1	106·3	107·5	108·8	110·1	111·4	112·7	114·0	115·3	116·4	117·5
1948 Mars	...	116·6	118·5	121·2	124·6	128·6	133·2	138·1	143·4	148·8	154·4	160·2	166·1	172·5	178·6	185·2	191·7	198·5	205·4
Merc.	...	345·7	4·3	23·2	41·4	57·7	70·3	74·6	69·2	63·5	68·2	79·4	95·3	113·0	131·2	149·1	166·0	180·1	189·0
Jup.	...	245·8	245·6	245·1	244·4	243·4	241·9	240·9	239·6	238·3	237·2	236·2	235·5	235·1	235·2	235·3	236·0	237·0	238·2
Ven.	...	45·5	55·3	64·0	71·3	76·5	79·1	77·3	72·4	66·0	61·9	61·8	65·4	71·4	79·4	88·4	98·2	108·6	119·6
Sat.	...	114·0	114·1	114·2	114·4	115·1	115·8	116·4	117·5	118·6	119·6	120·9	122·2	123·4	124·7	126·0	127·3	128·5	129·7
1949 Mars	...	353·7	1·3	9·0	16·4	23·8	31·1	38·4	45·5	52·5	59·4	66·3	73·0	79·6	86·2	92·5	98·9	105·1	111·3
Merc.	...	0·6	19·0	35·5	48·8	55·0	51·7	45·1	47·2	58·1	73·4	91·0	109·6	127·7	145·0	160·4	171·0	173·7	167·2
Jup.	...	276·7	277·6	278·4	278·8	278·8	278·5	277·9	276·9	275·7	274·5	273·1	271·8	270·6	269·5	268·7	268·3	268·2	268·3
Ven.	...	359·1	11·5	23·7	36·2	48·5	60·6	73·0	85·0	97·2	109·3	121·4	133·6	145·4	157·6	169·4	181·4	193·3	204·9
Sat.	...	127·9	127·7	127·5	127·4	127·8	128·2	128·7	129·6	130·5	131·3	132·5	133·7	134·9	136·2	137·5	138·7	139·9	141·2
1950 Mars	...	150·1	148·7	148·6	149·2	151·5	154·1	157·7	162·0	166·4	171·6	176·9	182·7	188·5	194·7	201·0	207·7	214·4	221·2
Merc.	...	13·4	27·4	35·0	33·8	26·4	26·5	36·0	51·1	68·7	87·4	105·6	123·8	139·9	152·0	157·0	152·8	146·1	147·9
Jup.	...	305·8	307·6	309·3	310·7	311·9	312·8	313·4	313·6	313·5	313·1	312·3	311·4	310·1	308·6	307·3	306·0	304·8	303·9
Ven.	...	313·2	323·5	334·1	345·2	356·4	7·9	19·5	31·3	43·0	55·0	66·8	78·7	91·0	102·9	115·1	127·8	139·7	152·0
Sat.	...	141·6	141·2	140·8	140·5	140·7	140·9	141·0	141·7	142·4	143·0	144·1	145·1	146·2	147·4	148·6	149·9	151·2	152·5

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 8	Mr 18	Mr 28	Ap 7
285·3	290·2	296·0	301·7	307·9	314·1	320·5	327·4	334·0	**1940**	340·5	347·3	354·1	0·7	7·6	14·2	20·8	27·5	34·2	40·8
185·5	202·2	216·4	226·3	227·8	221·1	216·5	221·7	233·5		249·0	266·2	284·6	301·4	317·5	330·3	336·7	333·9	327·0	327·6
337·3	336·2	335·2	334·4	334·1	334·1	334·4	334·1	336·2		337·4	338·9	340·7	342·6	344·6	346·9	349·1	351·5	353·8	356·3
182·6	194·7	207·4	219·7	232·3	244·8	257·4	269·8	282·4		294·6	307·0	319·3	331·4	343·5	355·2	6·9	18·3	29·4	40·1
4·6	3·8	3·0	2·1	1·5	0·9	0·3	0·2	0·1		0·1	0·6	1·1	1·6	2·5	3·4	4·4	5·6	6·8	8·1
O 9	O 19	O 29	N 8	N 18	N 28	D 8	D 18	D 28		Ja 7	Ja 17	Ja 27	F 6	F 16	F 26	Mr 8	Mr 18	Mr 28	Ap 7
159·9	166·3	173·0	179·2	185·6	192·3	198·9	205·3	212·0	**1941**	218·4	225·2	232·0	238·7	245·3	252·0	258·8	265·7	272·7	279·5
197·0	208·6	212·7	207·6	201·5	203·4	214·0	228·6	245·3		263·0	280·3	296·8	310·3	318·6	317·4	310·1	308·5	317·4	331·2
18·9	17·6	16·2	14·8	13·5	12·4	11·4	10·9	10·5		10·7	11·1	11·9	12·9	14·3	15·9	17·6	19·5	21·7	23·9
130·4	141·8	153·5	165·4	177·3	189·6	201·8	214·1	226·4		239·1	251·7	264·3	276·7	289·3	301·8	314·4	326·8	339·3	351·8
19·7	18·9	18·1	17·2	16·5	15·8	15·0	14·6	14·2		13·9	14·1	14·3	14·6	15·4	16·2	16·9	18·0	19·1	20·3
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
349·7	346·2	345·4	345·6	347·2	349·5	352·6	356·4	0·5	**1942**	5·2	10·2	15·4	20·9	26·5	30·0	38·0	44·1	49·9	55·8
196·4	194·1	186·5	186·4	195·0	208·7	229·9	242·1	259·8		276·2	290·5	300·1	301·3	294·3	290·8	296·8	309·8	326·3	344·4
56·9	56·7	56·0	55·1	53·8	52·5	51·5	49·9	48·6		47·5	46·8	46·3	46·1	46·5	47·0	47·8	49·0	50·4	52·4
216·1	227·5	238·8	249·8	260·3	270·3	279·4	287·4	293·5		297·2	297·0	292·6	286·8	282·5	281·9	285·3	291·3	299·1	308·1
34·8	34·1	33·4	32·6	31·8	31·0	30·1	29·5	28·9		28·4	28·4	28·3	28·3	28·8	29·3	29·9	30·9	31·9	32·9
172·0	178·7	185·4	192·0	198·7	205·5	212·3	219·1	226·8	**1943**	233·1	240·1	247·4	254·5	261·8	269·0	276·6	284·0	291·3	299·0
172·3	169·1	175·8	188·8	204·7	221·6	238·9	255·9	270·8		281·6	285·1	279·6	273·8	277·6	289·1	304·6	322·4	340·7	359·0
89·4	90·2	90·8	90·9	90·7	90·2	89·5	88·4	87·1		85·8	84·5	83·2	82·1	81·1	80·5	80·2	80·3	80·6	81·3
163·9	176·1	188·7	201·2	213·7	226·3	239·0	251·5	264·2		277·0	289·4	302·2	314·7	327·2	339·5	351·8	3·9	16·2	28·3
49·9	49·3	48·7	48·2	47·4	46·6	45·7	45·0	44·3		43·5	43·2	42·9	42·5	42·8	43·1	43·3	44·1	44·9	45·7
																Mr 8	Mr 18	Mr 28	Ap 7
54·7	56·6	57·5	56·8	55·0	51·9	48·9	45·9	43·7	**1944**	42·9	43·1	44·5	47·0	49·9	53·7	57·5	62·2	67·0	72·0
157·5	169·0	184·3	201·2	218·5	235·7	251·0	263·4	270·1		265·5	258·2	259·3	269·0	283·4	300·5	318·7	337·1	354·6	10·2
117·3	118·9	120·3	121·3	122·2	122·9	123·0	123·0	122·6		121·9	120·9	119·7	118·4	117·1	115·8	114·7	113·6	112·9	112·6
131·0	140·5	148·1	157·1	166·8	177·5	188·2	199·8	211·3		223·2	235·3	247·2	259·6	271·7	284·1	296·4	308·7	321·0	333·5
64·9	64·6	64·3	63·9	63·2	62·5	61·7	60·9	60·1		59·2	58·6	58·0	57·4	57·4	57·3	57·3	57·9	58·5	59·0
																Mr 9	Mr 19	Mr 29	Ap 8
184·6	191·3	198·2	205·1	212·2	219·2	226·1	233·4	240·7	**1945**	248·1	255·3	262·7	270·3	277·9	285·7	293·3	301·1	309·0	316·7
163·9	180·4	197·8	215·2	231·1	244·4	252·3	251·5	243·3		241·6	249·6	262·8	279·1	296·8	314·9	332·6	348·7	1·1	6·0
142·4	144·5	146·4	148·1	149·6	151·0	152·2	153·0	153·7		153·9	153·8	153·5	152·8	151·8	150·5	149·3	147·9	146·6	145·6
200·9	213·3	225·5	237·7	250·1	262·2	274·2	286·0	297·8		310·1	320·5	331·1	341·4	350·8	359·3	5·8	10·0	11·1	7·7
79·1	79·1	79·0	79·0	78·4	77·8	77·3	76·4	75·5		74·7	74·0	73·3	72·5	72·2	71·9	71·6	71·9	72·2	72·5
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
83·7	88·2	92·4	95·9	98·8	100·8	101·5	101·0	99·5	**1946**	96·5	92·4	88·8	85·8	83·3	82·9	83·4	85·2	87·9	91·1
177·4	194·8	211·4	225·5	235·3	240·7	229·7	225·4	230·5		242·8	258·6	275·8	293·7	311·0	327·2	340·4	347·2	344·3	337·1
166·2	168·3	170·4	172·5	174·5	176·4	178·1	179·8	181·1		182·2	183·1	183·7	183·9	183·9	183·6	182·9	181·8	180·8	179·5
145·9	158·1	170·6	183·0	195·3	207·8	220·3	232·9	246·2		258·3	270·7	283·5	296·0	308·8	321·3	333·8	346·2	358·6	11·0
92·9	93·1	93·3	93·6	93·8	93·0	92·6	91·8	91·0		90·3	89·5	88·7	87·8	87·3	86·8	86·2	86·2	86·1	86·1
197·8	204·7	211·7	219·0	226·2	233·3	240·7	248·1	255·7	**1947**	263·2	270·8	278·6	286·4	294·2	302·1	309·9	317·8	325·8	333·6
191·2	206·2	217·7	221·7	216·7	210·3	212·5	223·1	238·0		254·7	272·5	289·7	306·3	320·1	328·3	327·8	320·3	318·9	327·0
189·5	191·7	193·9	196·1	198·3	200·4	202·6	204·6	206·5		208·3	209·9	211·2	212·4	213·3	214·0	214·2	214·3	218·9	213·3
213·8	217·7	218·4	214·7	208·9	203·7	202·5	205·1	210·9		218·4	227·5	237·2	247·8	258·6	269·9	281·6	293·2	304·9	316·8
106·1	106·6	107·1	107·5	107·5	107·4	107·4	106·8	106·2		105·5	104·7	103·9	103·0	102·3	101·6	100·9	100·6	100·3	100·0
																Mr 8	Mr 18	Mr 28	Ap 7
102·1	107·7	113·0	117·8	122·5	126·3	130·0	132·6	134·5	**1948**	135·4	135·0	133·7	130·2	126·6	122·7	119·2	117·1	115·9	115·8
199·3	205·7	203·2	195·6	195·2	204·2	217·7	233·9	251·4		269·0	285·7	300·2	301·9	311·1	304·6	300·4	307·1	319·8	336·3
213·5	215·5	217·7	220·0	222·1	224·4	226·6	228·8	231·1		233·2	235·3	237·2	239·1	240·7	242·2	243·5	244·5	245·2	245·7
183·2	195·4	208·1	220·4	233·0	245·5	258·1	270·6	282·9		295·4	307·7	319·9	331·9	344·0	355·9	7·4	18·9	29·9	40·5
118·7	119·4	120·1	120·8	121·0	121·2	121·4	120·0	120·6		120·3	119·6	118·9	118·1	117·3	116·5	115·6	115·1	114·6	114·0
																Mr 9	Mr 19	Mr 29	Ap 8
212·3	219·1	226·3	233·6	241·1	248·5	256·0	263·7	271·2	**1949**	279·1	286·9	294·7	302·7	310·6	318·4	326·2	334·1	342·0	349·7
188·8	181·1	178·6	186·1	197·6	213·8	230·6	248·1	265·0		280·3	291·5	294·8	289·0	283·5	287·6	298·6	314·3	331·9	350·6
239·6	241·3	243·1	245·0	247·1	249·3	251·5	253·8	256·1		258·4	260·6	263·0	265·2	267·3	269·4	271·4	273·1	274·7	276·1
130·9	142·4	154·2	166·1	178·0	190·3	202·3	214·9	227·2		239·8	252·3	264·9	277·3	289·8	302·6	314·9	327·6	340·0	352·3
130·8	131·7	132·6	133·5	134·0	134·5	134·9	134·8	134·7		134·5	133·8	133·1	132·5	131·7	130·9	130·1	129·4	128·7	128·1
117·3	123·0	128·9	134·3	139·7	144·8	149·5	154·1	158·0	**1950**	161·5	164·5	166·5	167·5	167·1	165·2	162·6	158·9	155·0	151·2
162·1	166·7	178·3	193·6	210·5	227·8	244·8	260·3	272·4		278·1	274·6	267·5	268·7	278·4	293·2	310·5	328·5	346·9	4·7
268·8	269·7	270·9	272·2	273·9	275·6	277·6	279·7	282·0		284·1	286·4	288·9	291·2	293·5	296·0	298·3	300·5	302·7	304·7
216·5	227·9	239·2	249·9	260·4	270·1	279·2	286·6	292·2		294·6	293·4	288·8	280·9	279·0	280·0	283·8	290·6	298·7	308·1
142·5	143·5	144·5	145·5	146·7	148·9	147·5	147·6	147·7		147·8	147·4	147·0	146·6	145·8	145·0	144·3	143·5	142·7	141·9
228·1	235·2	242·4	249·9	257·3	265·0	272·6	280·1	288·0	**1951**	295·8	303·6	311·5	319·2	327·2	334·8	342·5	350·1	357·8	5·2
158·7	173·2	190·0	207·1	224·5	240·6	253·8	261·3	260·2		252·7	251·0	258·4	272·4	288·8	306·8	324·9	342·8	358·7	11·5
303·3	302·9	302·9	303·4	304·1	305·1	306·3	307·9	309·7		311·6	313·7	315·9	318·1	320·6	322·9	325·3	327·7	330·2	332·5
164·5	177·0	189·3	201·9	214·5	227·1	239·6	252·2	265·0		277·6	290·2	302·8	315·2	327·7	340·2	352·3	4·6	16·6	28·8
153·7	154·8	156·9	157·0	157·8	158·6	159·4	159·8	160·2		160·5	160·3	160·1	159·9	159·3	158·7	158·0	157·2	156·4	155·5

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle.

Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1951 Mars	...	9·1	16·5	23·9	31·0	38·3	45·3	52·2	59·3	66·2	72·8	79·5	86·0	92·8	99·2	105·5	111·9	118·1	124·4
Merc.	...	14·7	15·6	8·4	6·3	14·8	28·7	45·8	64·4	83·3	101·6	118·4	132·0	139·4	137·2	131·2	129·9	139·0	152·6
Jup.	...	333·8	336·0	338·3	340·4	342·4	344·2	345·7	347·2	348·3	349·1	349·8	349·8	349·7	349·1	348·3	347·0	345·8	344·5
Ven.	...	35·1	46·9	58·6	70·0	81·4	92·3	103·0	113·0	122·7	131·0	138·3	143·5	145·1	144·5	139·3	133·2	129·1	129·6
Sat.	..	153·2	154·6	154·0	153·4	153·3	153·3	153·2	153·7	154·2	154·6	155·5	156·4	157·3	158·4	159·5	160·6	161·9	163·2
1952 Mars	...	202·2	199·3	195·7	192·7	189·1	188·7	188·9	190·2	192·6	195·8	199·8	204·3	209·5	214·8	220·8	227·0	233·4	240·1
Merc.	...	351·0	347·2	353·4	6·1	23·1	41·6	60·5	79·2	96·7	111·7	121·1	120·9	113·8	111·2	119·0	131·9	148·3	165·6
Jup.	...	1·6	4·0	6·4	8·9	11·2	13·4	15·6	17·7	19·6	21·3	22·9	24·2	25·2	25·9	26·2	26·3	25·9	25·3
Ven.	...	340·6	353·0	5·2	17·7	30·0	42·2	54·4	66·7	79·0	91·3	103·4	115·8	127·9	140·2	152·4	164·8	177·1	189·3
Sa.	...	168·5	167·8	167·1	166·4	166·1	165·8	165·5	165·7	165·9	166·1	166·9	167·7	168·4	169·5	170·6	171·6	172·8	174·0
1953 Mars	...	24·0	31·0	38·0	45·0	51·8	58·8	65·6	72·2	78·9	85·5	92·2	98·5	105·0	111·5	117·8	124·3	130·6	136·8
Merc.	...	332·7	344·7	0·6	18·8	37·6	56·6	74·5	90·1	101·2	103·7	97·3	92·9	98·4	111·0	127·0	144·5	162·3	180·0
Jup.	...	29·1	31·3	33·6	36·1	38·4	40·8	43·2	45·5	47·7	50·0	52·1	54·1	55·8	57·6	58·9	60·1	61·0	61·5
Ven.	...	1·2	355·0	352·1	353·3	357·8	4·0	12·3	21·5	31·5	41·8	52·6	63·6	75·2	86·6	98·3	110·3	122·3	134·3
Sat.	...	181·4	180·6	179·8	179·1	178·6	178·1	177·6	177·6	177·6	177·6	178·1	178·6	179·2	180·1	181·0	181·9	183·1	184·3
1954 Mars	...	248·6	250·1	252·9	254·8	256·1	255·8	254·6	252·1	249·5	247·0	245·3	243·8	246·1	248·3	251·6	255·6	260·6	265·9
Merc.	...	335·3	356·0	14·6	33·7	52·0	68·5	80·6	85·4	80·4	74·5	78·5	90·0	105·5	123·0	141·0	159·1	175·7	189·8
Jup.	...	58·9	58·6	60·6	62·7	64·9	67·1	69·5	71·7	74·1	76·4	78·6	80·9	83·2	85·2	87·2	89·1	90·8	92·2
Ven.	...	18·1	30·5	42·7	54·6	66·8	79·0	90·7	102·5	114·1	125·7	137·0	148·5	159·5	170·3	180·4	190·2	199·2	206·8
Sat.	...	194·0	193·2	192·4	191·6	191·0	190·4	189·7	189·5	189·3	189·0	189·3	189·6	190·0	190·8	191·6	192·3	193·4	194·5
1955 Mars	...	38·6	45·2	52·0	58·6	65·4	71·9	78·4	85·0	91·4	98·0	104·4	110·7	117·1	123·4	130·0	136·2	142·5	148·9
Merc.	...	351·9	11·1	29·1	46·2	59·8	66·1	62·9	56·0	58·1	68·2	83·7	100·9	119·1	137·5	154·7	169·9	180·6	182·8
Jup.	...	85·8	86·9	88·1	89·5	91·3	93·2	95·0	97·2	99·3	101·5	103·7	106·1	108·3	110·5	112·8	114·9	117·0	119·1
Ven.	...	323·8	335·8	347·7	359·9	12·0	24·3	36·4	48·6	60·8	72·8	85·2	97·3	109·6	127·8	134·1	146·5	158·9	171·3
Sat.	...	206·2	205·4	204·6	203·9	203·2	202·5	201·7	201·3	200·9	200·5	200·6	200·7	200·9	201·5	202·1	202·6	203·5	204·5
1956 Mars	...	274·6	280·6	286·9	293·0	298·7	304·4	309·5	314·4	318·7	322·4	325·3	326·4	327·3	325·8	323·4	321·0	318·6	317·5
Merc.	...	6·6	23·8	38·1	46·2	44·8	37·5	37·7	46·9	61·6	78·9	97·3	115·7	133·6	149·5	161·7	166·7	162·2	155·6
Jup.	...	116·8	116·8	117·1	117·7	118·6	119·7	121·0	122·8	124·5	126·4	128·5	130·5	132·7	134·8	137·1	139·3	141·5	143·7
Ven.	...	45·6	55·1	63·7	70·4	75·4	76·8	74·6	68·7	62·5	59·2	60·2	64·3	71·0	79·2	88·3	98·5	108·9	119·9
Sat.	...	218·0	217·3	216·6	215·9	215·1	214·3	213·6	213·0	212·4	211·9	211·8	211·7	211·7	212·1	212·5	213·0	213·9	214·8
1957 Mars	...	53·4	59·7	65·8	72·2	78·3	84·8	91·1	97·2	103·7	109·8	116·3	122·6	128·7	135·9	141·7	148·1	154·5	160·8
Merc.	...	16·5	26·2	26·7	19·8	17·2	25·0	39·0	56·4	74·8	93·5	111·7	128·4	142·2	149·2	147·5	139·9	135·5	147·8
Jup.	...	149·6	148·6	147·9	147·5	147·3	147·6	148·2	149·1	150·1	151·4	153·1	154·8	156·5	158·1	160·7	162·7	165·0	167·2
Ven.	...	359·7	12·1	24·4	36·7	49·1	61·3	74·5	85·7	97·8	109·9	122·0	134·0	146·1	158·1	170·1	182·9	193·8	205·3
Sat.	...	228·6	229·0	228·4	227·8	227·0	226·2	225·5	224·8	224·1	223·5	223·2	222·9	222·7	222·9	223·1	223·4	224·1	224·8
1958 Mars	...	295·2	302·6	309·9	317·2	324·3	331·5	328·6	345·4	352·3	358·7	5·0	10·9	16·4	21·7	26·1	30·0	33·1	34·8
Merc.	...	8·5	2·3	357·8	4·0	16·7	33·6	51·9	70·9	89·7	106·8	121·6	131·1	131·2	124·3	121·5	128·8	141·5	157·8
Jup.	...	183·5	182·2	180·9	179·8	178·8	178·1	177·6	177·4	177·6	178·2	179·1	180·1	181·5	183·0	184·7	186·4	188·5	190·6
Ven.	...	313·2	323·6	334·3	345·5	356·7	8·4	19·9	31·6	43·4	55·3	67·3	79·3	91·4	103·4	115·6	127·9	140·2	152·6
Sat.	...	241·0	240·6	240·2	239·7	239·0	238·3	237·5	236·8	236·1	235·3	234·8	234·3	233·9	233·9	234·0	234·0	234·6	235·2
1959 Mars	...	68·5	74·1	79·9	85·8	91·7	97·7	103·8	109·9	116·0	122·0	128·3	134·6	141·0	147·2	153·7	160·2	166·5	173·2
Merc.	...	339·3	343·3	355·1	11·1	29·2	48·1	67·1	86·0	100·4	111·4	114·2	107·7	103·7	108·8	120·8	137·0	154·7	172·0
Jup.	...	217·5	216·6	215·4	214·1	212·8	211·6	210·3	209·2	208·6	208·0	207·9	208·1	208·6	209·3	210·5	211·8	213·4	215·0
Ven.	...	35·6	47·3	59·0	70·4	81·8	92·5	103·1	113·1	122·6	130·7	137·7	142·4	142·5	141·6	135·6	129·8	126·7	127·0
Sat.	...	251·9	251·7	251·5	251·2	250·6	250·0	249·3	248·6	247·9	247·1	246·4	245·7	245·1	245·0	244·9	244·8	245·2	245·6
1960 Mars	...	313·8	321·4	329·3	336·9	344·4	352·1	359·4	6·8	14·0	21·1	27·8	34·7	41·2	47·4	53·6	59·3	64·7	69·7
Merc.	...	333·3	348·7	6·2	25·2	44·2	62·5	78·7	91·1	96·1	91·2	85·3	89·1	100·2	115·5	132·8	150·8	168·5	184·9
Jup.	...	250·0	250·2	249·8	249·2	248·3	247·2	245·9	244·6	243·2	242·0	240·7	240·2	239·6	239·4	239·6	240·1	240·9	242·1
Ven.	...	341·2	353·6	5·8	18·2	30·6	42·8	55·1	67·5	79·6	91·9	104·1	116·4	128·6	140·8	153·1	165·4	177·7	189·9
Sat.	...	263·1	263·0	262·9	262·8	262·3	261·8	261·2	260·4	259·6	258·9	258·2	257·5	256·8	256·5	256·2	255·8	256·0	256·2
1961 Mars	...	85·0	90·3	95·1	100·4	105·7	111·3	117·1	122·8	128·8	134·8	140·8	147·2	153·2	159·7	166·1	172·7	179·2	185·9
Merc.		343·9	2·3	21·3	39·7	58·7	70·3	77·0	74·3	67·3	68·5	78·7	93·8	111·1	129·4	147·3	164·5	176·3	189·7
Jup.	...	280·8	281·9	282·8	283·4	283·5	283·3	282·8	282·1	281·0	279·7	278·5	277·1	275·8	274·7	273·8	273·1	272·8	272·9
Ven.	...	357·1	351·6	349·8	351·7	356·8	3·8	12·1	21·5	31·7	42·0	53·0	64·1	75·7	87·3	99·0	110·9	122·4	134·8
Sat.	...	273·8	274·0	274·2	274·4	274·0	273·6	273·3	272·5	271·7	271·0	270·3	269·6	268·8	268·3	267·8	267·2	267·2	267·2
1962 Mars	...	331·1	339·0	346·8	354·5	2·0	9·6	16·9	24·3	31·6	38·6	45·6	52·5	59·0	65·7	71·9	78·2	84·2	90·0
Merc.	...	358·5	16·9	34·2	48·7	57·2	56·6	49·3	48·1	57·6	72·0	89·1	107·4	125·8	143·5	159·2	171·5	176·3	171·8
Jup.	...	309·6	311·6	313·4	314·9	316·3	317·2	318·1	318·4	318·6	318·3	317·7	316·7	315·7	314·4	313·0	311·5	310·3	309·2
Ven.	...	18·7	31·0	43·1	55·3	67·3	79·3	91·1	103·1	114·6	126·1	137·6	148·9	159·8	170·5	180·7	190·3	199·0	205·8
Sat.	...	284·7	285·0	285·3	285·7	285·5	285·3	285·2	284·5	284·0	283·4	282·6	281·8	281·1	280·4	279·7	279·1	278·9	278·7

Mesh	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 8	Mr 18	Mr 28	Ap 7
130·5	136·7	142·5	148·5	154·3	160·0	165·4	170·8	176·1	**1952**	181·3	186·0	190·6	194·6	198·2	201·0	203·4	204·4	204·7	203·4
168·9	185·0	204·1	220·6	234·7	244·5	245·6	238·6	234·4		240·1	252·1	267·7	285·1	303·0	320·9	337·1	350·6	357·3	358·4
343·1	341·8	340·7	339·8	339·3	339·1	339·2	339·8	340·6		341·7	343·2	344·8	346·6	348·6	350·7	352·4	355·3	357·7	0·0
132·7	139·6	147·8	157·1	167·0	177·6	188·6	200·1	211·8		223·5	235·6	247·7	260·1	272·2	284·7	297·0	309·2	321·6	334·0
164·4	165·6	166·8	167·9	168·9	169·9	170·9	171·4	171·9		172·5	172·5	172·6	172·6	172·1	171·6	171·1	170·4	169·7	168·9
																Mr 9	Mr 19	Mr 29	Ap 8
246·7	253·7	260·9	268·2	275·7	283·0	290·6	298·2	305·8	**1953**	313·4	321·0	328·4	336·2	343·6	351·0	358·4	5·7	13·1	20·8
183·7	200·2	215·5	226·8	230·5	225·1	218·9	222·0	232·4		247·0	264·2	281·7	299·4	316·0	330·1	338·8	338·1	330·6	329·5
24·3	23·1	21·7	20·4	19·0	17·9	16·8	16·0	15·6		15·5	15·9	16·5	17·4	18·6	20·1	21·9	23·7	25·7	27·8
201·6	214·0	226·2	238·3	250·5	262·6	274·6	286·4	298·2		309·6	320·6	331·2	341·4	350·6	358·5	4·8	8·3	8·3	4·2
175·1	176·3	177·5	178·8	179·8	180·8	181·9	182·6	183·3		184·1	184·3	184·5	184·7	184·4	184·1	183·8	183·1	182·4	181·8
143·2	149·3	155·5	161·6	167·6	173·7	179·8	185·8	191·8	**1954**	197·7	203·6	209·2	214·9	220·4	225·7	231·0	235·8	240·4	244·5
195·6	208·5	214·7	212·1	204·6	204·4	213·0	227·0	243·4		260·7	278·6	295·2	309·6	319·7	321·3	314·5	310·7	316·7	329·9
61·6	61·7	61·2	60·3	59·1	58·0	56·6	55·2	54·0		52·8	51·0	51·3	51·0	51·0	51·4	52·2	53·1	54·4	56·0
146·4	158·7	171·1	183·5	195·8	208·3	220·9	233·4	246·1		258·6	271·5	284·0	296·6	309·3	321·8	334·4	346·7	359·2	11·6
185·5	186·7	187·9	189·1	190·2	194·3	192·4	193·2	194·0		194·9	195·4	195·9	196·3	196·2	196·1	196·0	195·4	194·8	194·3
271·5	277·7	284·0	290·7	297·5	304·3	311·2	318·2	325·4	**1955**	332·3	339·5	346·6	353·6	0·7	7·6	14·4	21·3	28·2	35·1
198·2	197·9	180·4	187·6	194·7	207·2	223·0	240·3	257·7		274·6	289·7	300·6	304·5	298·6	293·1	297·3	308·5	324·6	342·2
93·5	94·4	95·1	95·4	95·4	95·0	94·3	93·4	92·2		91·0	89·7	88·4	87·1	86·0	85·3	84·8	84·6	84·9	85·4
212·7	215·8	215·4	210·4	204·5	200·6	200·0	204·0	209·9		218·1	227·2	237·3	247·8	259·0	270·3	281·8	293·8	305·5	317·5
195·6	196·8	198·0	199·1	200·3	201·5	202·6	203·6	204·6		205·5	206·1	206·7	207·3	207·4	207·6	207·7	207·3	206·9	206·4
																Mr 8	Mr 18	Mr 28	Ap 7
155·2	161·7	168·1	174·3	180·8	187·1	193·5	199·9	206·3	**1956**	212·8	219·3	225·8	232·3	238·7	245·2	251·6	258·1	264·6	270·9
176·5	171·5	176·2	187·6	202·7	219·7	237·0	254·1	269·6		282·1	287·7	283·9	277·2	278·4	288·0	302·7	320·2	338·5	357·0
120·8	122·4	123·9	125·2	126·2	126·8	127·3	127·4	127·1		126·6	125·7	124·6	123·3	122·0	120·6	119·3	118·4	117·6	116·9
183·8	196·1	208·7	221·2	233·6	246·2	258·5	271·2	283·6		296·0	308·4	320·5	332·6	344·6	356·4	7·8	19·1	30·1	40·7
205·5	206·7	207·9	209·0	210·2	211·4	212·5	213·6	214·7		215·7	216·4	217·1	217·9	218·2	218·5	218·9	218·7	218·5	218·3
																Mr 9	Mr 19	Mr 29	Ap 8
317·5	318·7	321·4	324·6	328·7	333·2	338·0	343·5	348·8	**1957**	354·7	0·5	6·6	12·6	18·7	24·9	31·1	37·3	43·7	50·0
157·6	168·0	182·5	199·2	216·6	233·7	249·8	262·9	270·8		269·3	261·7	260·3	268·3	281·8	298·5	316·6	334·9	352·9	8·8
145·8	147·8	149·8	151·6	153·2	154·6	155·9	156·9	157·5		158·1	158·0	157·8	157·3	156·4	155·2	154·0	152·8	151·4	150·1
131·2	143·0	154·6	166·4	178·6	190·7	203·0	215·3	227·9		240·1	252·9	265·5	277·9	290·4	303·2	315·6	328·2	340·5	352·9
215·6	216·7	217·8	218·9	220·2	221·5	222·8	223·9	225·0		226·0	226·8	227·6	228·5	228·9	229·3	229·7	229·6	229·5	229·6
167·4	173·9	180·4	187·1	193·6	200·4	207·0	213·9	226·6	**1958**	227·5	234·4	241·4	248·4	255·5	262·5	269·7	276·9	284·3	291·6
162·2	178·5	196·1	213·1	229·8	244·1	253·6	254·6	247·7		243·7	248·8	261·5	277·3	294·9	313·1	330·9	347·5	0·9	8·6
169·3	171·5	173·7	175·7	177·8	179·8	181·6	183·2	184·7		186·0	186·9	187·6	188·1	188·1	187·9	187·4	186·5	185·4	184·2
216·9	228·3	239·4	250·1	260·3	270·0	278·7	285·9	290·7		292·2	290·1	284·6	278·9	276·7	278·3	282·9	290·1	298·4	308·0
225·5	226·5	227·5	228·6	229·8	231·0	232·1	233·2	234·4		235·5	236·5	237·5	238·5	239·1	239·7	240·4	240·6	240·8	240·9
85·5	34·8	32·8	30·2	27·3	25·2	23·3	22·8	24·0	**1959**	25·8	28·4	31·6	35·5	39·9	44·5	49·5	54·6	60·0	65·5
175·0	192·7	209·6	224·5	235·9	239·1	234·6	228·2	231·1		241·3	256·5	273·4	291·4	309·2	326·2	340·0	349·0	349·0	341·6
192·7	195·0	197·1	199·2	201·5	203·7	205·8	207·9	209·9		211·7	213·3	214·9	216·2	217·2	218·0	218·5	218·5	218·4	217·9
165·0	177·5	189·9	202·4	215·0	227·6	240·1	252·9	265·6		278·1	290·7	303·3	315·9	328·3	340·6	352·8	5·1	17·1	29·4
235·7	236·6	237·5	238·4	239·5	240·6	241·8	243·2	244·2		245·3	246·4	247·5	248·5	249·3	250·1	250·9	251·3	251·7	252·1
																Mr 8	Mr 18	Mr 28	Ap 7
179·8	186·5	193·1	199·9	206·9	213·7	220·7	227·7	234·9	**1960**	242·1	249·5	256·8	264·3	271·7	279·2	286·9	294·5	302·2	309·9
189·6	205·1	218·2	225·4	220·6	211·8	213·6	222·3	236·5		252·7	270·3	288·1	305·0	319·9	329·9	331·6	324·7	321·0	327·5
217·0	218·9	221·1	223·3	225·4	227·6	230·0	232·2	234·3		236·5	238·7	240·7	242·6	244·5	246·0	247·3	248·5	249·4	250·0
132·4	138·9	147·5	156·9	167·0	177·8	189·0	200·5	212·2		223·9	236·0	248·1	260·6	272·8	285·3	297·5	309·8	322·2	334·6
246·0	246·8	247·6	248·3	249·4	250·5	251·6	252·8	254·0		255·1	256·2	257·3	258·4	259·4	260·3	261·3	261·8	262·3	262·9
																Mr 9	Mr 19	Mr 29	Ap 8
74·1	78·3	81·6	84·1	85·5	86·1	85·2	82·7	79·4	**1961**	75·8	72·4	69·8	68·6	68·8	70·2	72·3	75·4	79·0	83·0
198·8	207·2	206·8	199·3	196·8	203·8	216·5	232·3	249·4		266·9	283·8	299·1	310·5	314·3	308·6	303·0	307·3	318·7	334·5
243·4	244·9	246·7	243·7	250·6	252·7	255·0	257·2	259·5		261·9	264·1	266·4	268·7	271·0	273·0	275·0	276·9	278·6	280·1
202·2	214·4	226·6	239·0	251·1	263·1	275·0	286·9	298·4		309·8	320·9	331·2	341·2	350·2	357·8	3·4	6·4	5·8	0·4
256·3	257·0	257·7	258·4	259·4	260·4	261·4	262·6	263·8		264·9	266·1	267·3	268·4	269·4	270·4	271·5	272·2	272·9	273·6
192·8	199·7	206·6	213·5	220·5	227·6	234·9	242·3	249·7	**1962**	257·2	246·8	272·4	280·1	287·9	295·6	303·4	311·4	319·4	327·1
192·2	185·8	180·7	185·3	196·8	211·9	228·3	246·2	263·4		279·0	291·5	297·2	293·8	286·7	287·8	298·0	312·7	330·2	348·6
273·2	273·9	275·0	276·3	277·7	279·6	281·4	283·4	285·5		289·8	290·2	292·4	294·8	297·2	299·6	302·0	304·3	306·5	308·6
147·0	156·3	171·8	184·1	196·5	208·9	221·5	234·2	246·9		259·5	272·1	284·7	297·3	310·0	322·4	335·0	347·5	359·8	12·2
267·2	267·7	268·2	268·8	269·7	270·6	271·5	272·6	273·7		274·9	276·1	277·3	278·4	279·5	280·6	281·7	282·6	283·5	284·3
95·6	100·9	105·7	110·3	114·2	117·6	120·2	121·8	122·6	**1963**	122·3	120·4	117·6	113·8	109·8	106·6	104·0	103·3	103·6	105·5
165·1	167·2	177·1	191·7	208·3	225·7	242·9	259·0	272·8		280·0	278·9	271·6	269·7	278·1	291·5	308·3	326·5	344·0	3·1
308·4	308·0	307·8	308·0	308·6	309·5	310·6	312·0	313·7		315·5	317·5	319·7	322·0	324·3	326·7	329·0	331·4	333·8	336·3
210·8	212·8	212·0	206·7	201·0	197·6	198·6	202·6	209·3		217·7	227·3	237·3	248·0	259·3	270·8	282·2	294·1	305·9	317·9
278·4	278·7	279·0	279·4	280·2	281·9	281·7	282·8	283·9		284·9	286·1	287·3	288·6	289·8	291·0	292·1	293·1	294·1	295·0

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revat.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360.00

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
Eng. date	...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1963 Mars	...	106·6	109·3	113·0	117·1	121·7	126·5	131·6	137·2	142·7	148·6	154·5	160·4	166·8	173·0	179·7	186·0	192·7	199·7
Merc.	...	11·9	27·3	37·3	37·9	30·7	28·4	36·2	49·9	66·7	84·8	103·5	121·8	138·7	152·1	158·3	157·3	149·5	149·4
Jup.	...	337·5	339·8	342·1	344·3	346·4	348·3	350·0	354·5	352·8	353·8	354·5	354·7	354·9	354·5	353·7	352·8	351·6	350·2
Ven.	...	324·1	336·2	348·2	0·4	12·6	24·8	37·0	49·1	61·3	73·3	85·7	97·7	110·1	122·4	134·8	147·0	159·4	171·9
Sat.	...	295·5	296·1	296·7	297·2	297·3	297·4	297·4	296·9	296·4	296·0	295·2	294·4	293·6	292·9	292·2	291·5	291·1	290·7
1964 Mars	...	347·5	355·2	2·9	10·9	18·0	25·3	32·6	39·9	46·9	53·8	60·8	67·4	74·2	80·6	87·2	93·4	99·5	105·7
Merc.	...	16·8	19·5	18·1	8·6	14·6	27·5	44·1	62·4	81·4	100·8	117·0	131·6	141·0	141·5	134·6	131·3	138·6	151·5
Jup.	..	5·4	7·8	10·2	12·5	14·9	17·3	19·5	21·6	23·6	25·5	27·1	28·6	29·7	30·5	31·1	31·2	31·0	30·5
Ven.	...	45·8	55·1	63·3	69·5	73·7	74·3	70·7	65·0	59·3	57·1	58·7	63·3	70·3	78·0	88·4	98·7	109·4	120·4
Sat.	...	306·5	307·2	307·9	308·7	309·0	309·3	309·5	309·2	308·9	308·6	308·0	307·4	306·7	305·9	305·1	304·2	303·7	303·2
1965 Mars	...	135·4	135·5	136·4	138·6	141·4	145·1	149·3	153·9	159·0	164·2	170·0	175·8	181·8	188·1	194·5	201·1	207·8	214·5
Merc.	...	356·1	349·9	353·3	5·5	21·2	39·4	58·5	77·2	95·0	110·5	121·9	124·7	118·6	113·7	118·5	130·8	146·3	163·5
Jup.	...	32·7	35·0	37·3	39·6	42·1	44·4	46·8	49·2	51·5	53·7	55·8	51·9	59·8	61·5	63·1	64·3	65·3	66·1
Ven.	...	0·2	12·6	24·9	37·4	49·6	61·8	74·1	86·2	98·4	110·4	122·6	134·5	146·6	158·5	170·5	182·4	194·2	205·8
Sat.	...	317·5	318·4	319·3	320·3	320·8	321·3	321·8	321·7	321·6	321·6	321·1	320·6	320·0	319·2	318·4	317·6	316·9	316·2
1966 Mars	...	3·1	10·9	18·1	25·5	32·6	39·8	47·0	54·0	60·9	67·8	74·4	81·2	87·6	94·3	100·6	107·0	113·2	119·6
Merc.	...	333·8	343·4	358·8	16·6	35·5	54·4	72·9	89·3	101·9	106·8	101·9	96·1	99·5	110·2	125·2	142·5	160·2	177·9
Jup.	...	60·8	62·4	64·3	66·4	68·5	70·6	73·0	75·2	77·6	79·9	82·2	84·5	86·6	88·9	90·9	92·8	94·6	96·0
Ven.	...	318·4	323·6	334·8	345·8	357·2	8·8	20·5	32·2	44·0	55·9	67·8	80·0	91·9	104·1	116·2	128·6	140·8	153·2
Sat.	...	328·6	329·7	330·8	331·8	332·5	333·2	333·9	334·1	334·3	334·5	334·2	333·9	333·5	332·8	333·1	331·3	330·5	329·7
1967 Mars	...	180·6	177·1	176·1	171·7	171·2	172·1	174·1	177·1	180·5	184·8	189·6	194·7	200·5	206·3	212·3	218·7	225·2	232·1
Merc.	...	337·1	354·2	12·7	31·5	50·1	67·0	80·6	87·9	85·1	78·0	79·2	89·2	102·9	120·9	139·1	156·9	173·1	188·9
Jup.	...	90·0	90·8	92·0	93·3	94·9	96·8	98·6	100·6	102·7	105·0	107·1	109·4	111·7	113·9	116·1	118·3	120·4	122·4
Ven.	...	36·1	47·8	59·4	70·9	82·0	93·0	103·2	113·2	122·2	130·2	136·5	140·7	140·1	138·0	131·8	126·0	124·7	125·8
Sat.	...	339·8	341·0	342·2	343·4	344·3	345·2	346·2	346·7	347·2	347·6	347·5	347·4	347·3	346·7	346·1	345·5	344·7	343·9
1968 Mars	...	18·2	25·4	32·5	39·5	46·6	53·6	60·3	67·1	74·0	80·7	87·6	93·7	100·4	106·6	113·7	119·5	125·6	132·1
Merc.	...	340·9	8·8	27·2	44·5	59·2	68·1	67·7	60·2	59·2	67·7	82·1	99·1	117·2	135·5	152·8	168·6	180·7	185·6
Jup.	...	121·2	121·0	121·1	121·6	122·3	123·5	124·7	126·2	127·9	129·7	131·7	133·7	135·9	138·1	140·3	142·6	144·8	146·9
Ven.	...	341·7	354·2	6·3	18·7	31·2	43·3	55·7	68·0	80·2	92·4	104·8	116·9	129·1	141·3	153·6	166·0	178·2	190·5
Sat.	...	351·6	352·9	354·2	355·4	356·5	357·6	358·6	359·3	0·0	0·7	0·9	1·1	1·2	0·8	0·4	0·0	359·2	358·4
1969 Mars	...	232·0	233·1	233·3	232·3	230·0	227·5	224·4	222·3	220·9	220·9	222·2	224·7	228·1	232·3	237·0	242·5	248·3	254·2
Merc.	...	4·8	22·3	37·6	47·7	49·4	42·4	39·3	46·1	60·3	76·9	95·1	113·7	131·7	148·1	161·8	168·6	167·0	159·4
Jup.	..	154·2	153·2	152·3	151·7	151·6	151·6	152·0	152·7	153·7	155·0	156·4	158·1	159·9	161·9	163·9	166·0	168·1	170·2
Ven.	...	353·1	348·4	346·8	350·3	356·0	3·2	12·1	21·5	31·7	42·5	53·4	64·5	76·1	87·7	99·5	111·3	123·5	135·5
Sat.	...	3·4	4·7	6·0	7·3	8·5	9·7	10·9	11·8	12·7	13·7	14·1	14·5	15·0	14·9	14·8	14·6	14·0	13·4
1970 Mars	...	32·7	39·8	46·6	53·4	60·0	66·8	73·5	79·9	86·4	92·9	99·4	105·9	112·3	119·0	125·2	131·5	137·8	144·1
Merc.	...	15·3	27·1	30·4	23·7	19·8	25·8	37·9	54·3	72·5	91·3	109·7	127·0	141·7	150·5	151·5	143·4	141·1	148·1
Jup.	...	188·3	186·9	185·5	184·5	183·3	182·4	181·8	181·7	181·6	182·1	182·8	183·7	184·9	186·4	188·1	189·9	191·8	193·9
Ven.	...	19·3	31·6	43·7	55·9	67·9	80·1	91·9	103·6	115·3	126·8	138·2	149·2	160·1	170·6	180·5	190·0	198·3	204·9
Sat.	...	15·4	15·7	18·0	19·4	19·7	22·0	23·3	24·4	25·5	26·6	27·3	28·1	28·7	28·9	29·1	29·2	28·8	28·4
1971 Mars	...	264·7	270·3	275·6	280·5	285·2	289·3	293·0	296·0	297·4	298·0	298·0	294·7	291·7	289·8	287·8	288·0	289·1	291·3
Merc.	...	11·5	6·9	0·8	4·4	16·1	31·7	49·9	68·6	87·8	104·3	120·8	132·3	134·8	128·4	123·7	128·7	140·5	155·8
Jup.	...	222·1	221·2	220·2	218·9	217·7	216·3	215·1	213·9	213·0	212·5	212·2	212·2	212·6	213·3	214·2	215·4	216·9	218·6
Ven.	...	324·8	336·8	348·9	1·0	13·2	25·4	37·6	49·8	61·7	74·0	86·3	98·4	110·7	123·0	135·4	147·7	160·0	172·5
Sat.	...	27·8	29·1	30·4	31·6	33·0	34·4	35·8	37·0	38·2	39·5	40·4	41·3	42·2	42·6	43·0	43·5	43·4	43·3
1972 Mars	...	47·6	53·9	60·5	66·9	73·3	79·7	86·0	92·6	98·8	105·2	111·6	117·8	124·2	130·7	137·0	143·3	149·8	156·3
Merc.	...	342·9	343·8	354·2	9·2	27·0	45·9	64·9	83·1	99·4	112·1	117·3	112·7	106·3	109·0	120·1	135·0	152·1	169·8
Jup.	...	254·5	254·7	254·6	254·1	253·3	252·3	251·1	249·7	248·3	247·1	245·9	245·0	244·4	244·0	244·0	244·4	245·1	246·0
Ven.	...	45·7	54·8	62·5	68·6	71·8	71·8	67·7	61·1	56·1	54·8	57·3	62·9	70·0	79·0	88·6	98·9	109·6	120·7
Sat.	...	40·4	41·7	43·0	44·3	45·6	46·9	48·3	49·6	50·9	52·2	53·3	54·4	55·5	56·2	56·9	57·6	57·7	57·8
1973 Mars	...	287·6	294·7	301·4	308·5	315·3	322·0	328·6	335·2	341·3	347·4	352·9	357·8	2·2	6·1	8·8	10·4	10·5	9·2
Merc.	...	322·9	346·9	4·2	22·9	41·8	60·5	77·5	91·3	98·5	96·3	89·0	89·4	99·4	113·8	130·8	148·5	166·3	183·4
Jup.	...	284·8	286·1	287·1	287·8	288·1	288·2	287·9	287·2	286·4	285·2	283·8	282·5	281·1	279·1	278·8	278·1	277·6	277·4
Ven.	...	0·8	13·2	25·6	38·0	50·3	62·4	74·8	86·8	99·0	111·0	123·2	135·2	147·2	159·1	171·0	182·9	194·6	206·2
Sat.	...	53·3	54·5	55·7	56·8	58·1	59·4	60·8	62·1	63·5	64·9	66·1	67·3	68·5	69·4	70·3	71·3	71·9	72·7
1974 Mars	...	62·3	68·5	74·3	80·4	86·5	92·5	98·7	104·9	111·1	117·4	123·4	129·8	136·1	142·5	148·9	155·2	161·9	168·4
Merc.	...	341·9	0·0	18·9	37·6	55·2	69·9	78·5	78·5	71·2	69·8	79·4	92·4	109·0	126·0	145·3	162·5	178·3	190·2
Jup.	...	313·6	315·6	317·4	319·0	320·5	321·7	322·6	323·2	323·5	323·3	322·9	322·2	321·1	319·8	318·6	317·2	315·9	314·7
Ven.	...	313·4	323·8	335·0	346·2	357·8	9·3	20·9	32·7	44·6	56·6	68·4	80·5	92·6	104·8	117·0	129·3	141·6	153·9
Sat.	...	66·5	67·5	68·5	69·5	70·8	72·1	73·3	74·7	76·0	77·3	78·6	79·9	81·2	82·2	83·4	84·5	85·2	85·9

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 8	Mr 18	Mr 28	Ap 7
206·4	213·5	220·5	227·6	235·1	242·5	249·9	257·1	265·1	**1964**	272·9	280·4	288·4	296·3	304·1	312·0	319·8	327·9	335·7	343·4
151·8	171·7	187·8	205·2	222·6	238·9	253·2	263·0	263·6		256·5	252·8	258·8	271·0	286·7	304·3	322·8	340·7	357·6	11·6
348·8	347·5	346·3	345·2	344·6	344·1	344·1	344·5	345·2		346·1	347·4	348·9	350·6	352·5	354·7	356·8	359·1	1·4	3·8
184·3	196·8	209·2	221·7	234·1	246·7	259·3	271·7	284·2		296·5	308·7	320·8	332·9	344·9	356·7	8·2	19·4	30·3	40·7
290·2	290·3	290·4	290·4	291·1	291·8	292·4	293·4	294·4		295·3	296·5	297·7	298·8	300·0	301·2	302·5	303·6	304·7	305·9
																Mr 9	Mr 19	Mr 29	Ap 8
111·5	117·3	122·8	128·1	133·3	138·1	142·6	146·3	149·7	**1965**	152·2	154·0	154·7	154·1	151·8	148·5	144·9	141·0	138·0	136·1
167·4	184·5	202·1	218·8	233·9	244·8	248·6	243·1	236·9		240·2	251·0	267·2	283·1	301·2	319·0	336·0	359·3	359·6	359·6
29·7	28·6	27·3	26·1	24·7	23·4	22·2	21·3	20·8		20·5	20·6	21·1	21·8	22·9	24·3	25·8	27·7	29·6	31·7
131·8	143·4	155·1	167·1	179·1	191·3	205·6	215·9	228·5		246·0	253·5	266·2	278·5	291·0	303·8	316·2	328·8	341·3	353·8
302·8	302·6	302·4	302·2	302·6	303·0	303·5	304·4	305·3		306·1	307·2	308·3	309·5	310·8	312·1	313·3	314·6	315·8	316·9
221·6	228·7	235·9	243·2	250·7	258·2	265·8	273·7	281·3	**1966**	289·1	296·9	304·8	312·7	320·4	328·3	336·2	343·8	351·6	359
181·2	198·5	214·2	226·7	232·8	230·8	322·3	222·4	231·7		245·6	262·1	280·0	297·5	314·5	329·4	339·8	341·9	335·4	331
66·4	66·4	66·0	65·5	64·5	63·3	62·1	60·7	59·3		58·2	57·1	56·3	55·8	55·7	55·9	56·5	57·4	58·5	59·[illegible]
217·3	228·6	239·6	250·1	260·2	269·7	278·0	284·8	288·8		289·4	288·2	280·5	275·0	275·2	276·4	281·8	289·4	299·2	307·9
315·4	315·1	314·8	314·4	314·6	314·8	315·1	315·8	316·5		317·2	318·3	319·4	320·4	321·6	322·8	324·1	325·4	326·7	328·0
125·5	131·5	137·2	143·0	148·7	154·4	159·7	164·6	169·5	**1967**	174·1	178·2	182·0	185·0	187·4	189·0	189·1	188·0	185·1	182·0
194·4	208·1	216·5	215·7	208·3	205·0	212·9	225·7	241·5		258·7	276·3	293·4	308·9	320·4	324·5	319·1	313·5	316·7	328·6
97·3	98·4	99·3	99·7	99·9	99·8	99·2	98·4	97·4		96·1	94·7	93·4	92·1	91·0	90·1	89·5	89·2	89·2	89·7
165·6	178·1	190·7	203·0	215·7	228·2	240·8	253·5	266·2		278·8	291·4	303·9	316·5	328·8	341·1	353·5	5·7	17·7	30·0
328·9	328·4	327·9	327·3	327·3	327·2	329·2	327·7	328·2		328·8	329·8	330·8	331·7	332·9	334·1	335·3	336·6	337·9	339·2
																Mr 8	Mr 18	Mr 28	Ap 7
239·1	246·2	253·3	260·6	268·1	275·8	283·2	290·9	298·7	**1968**	306·3	314·1	321·8	329·5	336·9	344·8	352·2	359·7	7·0	14·4
199·0	201·2	194·6	189·9	194·5	206·0	220·8	238·0	255·4		272·7	288·4	301·1	307·0	303·3	296·2	297·8	308·0	322·8	340·2
124·3	126·1	127·6	128·9	130·1	130·9	131·5	131·8	131·5		131·1	130·3	129·4	128·1	126·9	125·6	124·3	123·1	122·2	121·4
131·4	138·5	147·3	156·9	167·2	178·3	189·4	201·0	212·6		224·5	236·4	248·7	261·0	273·3	285·8	298·0	310·4	322·8	335·3
343·1	342·3	341·6	340·9	340·6	340·3	340·1	340·4	340·7		341·0	341·8	342·6	343·4	344·5	345·6	346·8	348·1	349·4	350·7
																Mr 9	Mr 19	Mr 29	Ap 8
138·1	144·3	150·4	156·5	162·5	168·3	174·4	180·1	185·9	**1969**	191·6	197·0	202·3	207·5	212·4	217·0	221·3	225·3	228·4	230·9
181·1	174·3	176·3	186·6	200·9	217·6	234·8	252·0	268·3		281·6	289·5	288·3	280·8	279·3	287·4	301·3	318·1	336·4	354·8
149·1	151·1	153·1	154·9	156·7	158·2	159·5	160·6	161·5		162·0	162·3	162·1	161·6	160·8	159·9	158·7	157·4	156·2	154·8
202·7	215·0	227·1	239·3	251·4	263·4	275·4	287·2	298·8		309·9	320·9	331·1	340·9	349·7	356·9	2·0	3·9	2·1	356·3
357·7	356·9	356·0	355·2	354·7	354·2	353·8	353·8	353·9		353·9	354·5	355·1	355·8	356·8	357·8	358·9	0·1	1·3	2·6
260·8	267·3	274·1	281·1	288·2	295·5	302·8	310·8	317·4	**1970**	324·8	332·2	339·4	346·8	354·0	1·7	8·3	15·2	22·5	29·1
158·5	166·6	181·0	197·1	214·4	231·7	248·1	262·5	272·0		273·1	266·2	262·2	267·5	280·7	296·5	314·5	332·8	350·9	7·8
172·5	174·7	176·8	179·0	181·2	183·0	184·9	186·7	188·2		189·5	190·6	191·5	192·0	192·2	192·2	191·7	191·1	190·0	188·8
147·7	159·9	172·4	184·7	197·1	209·5	222·1	234·9	247·5		260·2	272·7	285·4	298·0	310·6	323·0	335·6	348·0	360·4	12·8
12·7	11·9	11·1	10·3	9·5	8·8	8·1	7·9	7·7		7·4	7·8	8·2	8·5	9·4	10·3	11·1	12·3	13·5	14·7
150·5	156·8	162·9	169·5	175·5	181·9	188·1	194·4	200·6	**1971**	206·8	213·1	219·4	225·5	231·7	237·9	244·1	249·9	255·9	261·7
160·8	176·6	193·6	211·2	227·8	242·8	254·2	257·6	251·8		246·2	249·8	260·4	275·4	292·6	310·6	328·8	345·7	0·5	10·0
196·0	198·1	200·4	202·6	204·7	207·0	209·1	211·2	213·1		215·1	216·9	218·5	219·9	221·0	221·9	222·5	222·8	222·9	222·3
209·7	210·5	208·3	202·6	197·3	194·6	196·8	201·6	208·7		217·3	227·3	237·4	248·3	259·4	271·1	282·6	294·6	306·4	318·6
27·9	27·1	26·3	25·6	24·8	24·0	23·1	22·6	22·1		21·6	21·7	21·8	21·9	22·6	23·3	23·9	25·0	26·1	27·1
																Mr 8	Mr 18	Mr 28	Ap 7
294·9	292·2	303·9	308·9	314·4	320·4	326·5	332·7	338·9	**1972**	345·3	351·8	358·3	4·8	11·3	18·0	24·4	31·2	37·4	43·9
172·0	189·5	207·9	223·4	236·0	241·7	239·1	231·4	231·2		240·9	254·8	271·3	289·1	307·0	324·2	339·5	350·2	352·6	346·1
220·3	222·3	224·5	226·5	228·8	231·0	233·2	235·5	237·8		240·0	242·1	244·3	246·2	248·0	249·8	251·2	252·4	253·4	254·2
185·0	197·4	209·9	222·3	234·8	247·3	259·7	272·3	284·8		297·0	309·3	321·5	333·5	345·4	357·1	8·6	19·6	30·5	40·7
43·1	42·5	41·9	41·2	40·3	39·4	38·6	37·9	37·2		36·5	36·3	36·1	35·9	36·3	36·7	37·0	37·9	38·8	39·8
																Mr 9	Mr 19	Mr 29	Ap 8
162·7	169·2	175·6	181·9	188·7	195·2	201·8	208·3	215·0	**1973**	221·7	228·4	235·3	242·1	248·9	255·9	262·8	269·8	276·7	283·9
187·4	203·8	217·3	225·3	224·9	217·3	214·8	221·6	234·8		250·9	268·1	285·9	303·3	318·6	330·4	334·6	329·5	323·6	327·3
247·2	248·7	250·3	252·1	254·2	256·3	258·4	260·8	263·0		265·3	267·6	270·0	272·2	274·4	276·6	278·7	280·6	282·6	284·1
132·2	143·8	155·7	167·7	179·7	191·5	204·2	216·6	229·1		241·6	254·8	266·5	279·3	291·8	304·2	316·7	329·4	341·8	354·3
57·9	57·5	57·1	56·6	55·8	55·0	54·2	53·4	52·6		51·8	51·4	51·0	50·5	50·6	50·7	50·8	51·5	52·2	52·9
7·0	4·5	1·7	0·5	359·9	0·7	2·2	4·9	8·1	**1974**	11·8	15·8	20·8	25·9	31·0	36·3	41·9	47·6	53·4	59·2
198·0	208·2	210·3	204·0	198·8	203·0	215·1	230·3	247·3		264·7	282·1	297·9	310·6	316·8	313·8	306·8	307·4	318·0	332·8
277·7	278·3	279·1	280·3	281·8	283·3	285·1	287·2	289·3		291·5	293·9	296·1	298·4	300·9	303·2	305·6	307·9	310·2	312·4
217·6	228·9	239·8	250·3	260·1	269·4	277·3	283·2	286·5		286·5	282·5	276·1	272·1	271·5	274·9	281·0	289·0	298·1	307·9
72·5	72·4	72·2	72·1	71·4	70·7	70·1	69·2	68·3		67·5	66·8	66·1	65·4	65·2	65·0	64·9	65·3	65·7	66·2
174·8	181·5	188·3	195·0	201·7	208·5	215·3	222·2	229·2	**1975**	236·4	243·6	250·7	258·1	265·4	272·6	280·3	287·6	295·3	302·8
194·9	190·1	183·6	185·7	196·0	210·2	226·7	244·2	261·3		277·6	291·1	299·0	297·8	290·3	288·8	297·5	310·5	328·0	346·5
313·7	313·9	312·9	312·8	313·1	313·9	314·9	316·2	317·7		319·5	321·4	323·6	325·8	328·0	330·3	332·8	335·2	337·6	340·0
166·4	178·8	191·4	203·7	216·4	228·9	241·6	254·1	266·8		279·4	292·0	304·6	317·1	329·4	341·7	354·1	6·2	18·2	30·5
86·6	86·7	86·8	86·8	86·4	86·0	85·5	84·7	83·9		83·1	82·3	81·5	80·7	80·3	79·9	79·4	79·5	79·6	79·7

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle. Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
	Eng. date ...	Ap 14	Ap 24	My 4	My 14	My 24	Je 3	Je 13	Je 23	Jl 3	Jl 13	Jl 23	Au 2	Au 12	Au 22	S 1	S 11	S 21	O 1
1975	Mars ...	306·8	314·4	322·0	329·4	337·0	344·5	351·8	359·1	6·0	13·1	19·7	26·4	32·8	38·7	44·5	49·7	54·6	59·0
	Merc. ...	356·2	15·0	32·6	48·0	58·4	60·4	53·6	50·4	57·2	70·6	87·2	05·1	123·5	141·4	157·7	171·1	178·4	176·1
	Jup. ...	341·6	343·9	346·2	348·5	350·6	352·5	354·3	356·0	357·3	358·4	359·3	359·7	359·9	359·7	359·1	358·2	357·0	355·8
	Ven. ...	36·6	48·2	59·7	71·1	82·2	93·0	103·2	112·9	121·7	129·6	134·9	138·0	137·4	132·5	126·2	121·8	121·2	124·4
	Sat. ..	80·2	81·0	81·8	82·5	83·6	84·7	85·9	87·2	88·5	89·5	91·2	92·5	93·9	95·1	96·3	97·4	98·4	99·3
	Eng. date ...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1976	Mars ...	78·6	83·7	89·1	94·7	100·3	105·9	111·8	117·8	123·6	129·9	136·0	142·0	148·5	154·7	161·1	167·7	174·2	180·8
	Merc. ...	10·3	26·2	37·8	41·6	35·9	30·9	35·8	48·7	64·8	82·8	101·4	119·8	136·8	15·3	160·7	161·2	153·7	150·7
	Jup. ...	9·1	11·5	13·9	16·3	18·6	21·0	23·3	25·5	27·5	29·5	31·2	32·7	34·1	35·1	35·7	36·0	36·2	35·8
	Ven. ...	342·4	354·8	7·2	18·5	31·8	43·9	56·3	68·5	80·7	93·1	105·2	117·5	129·7	142·0	154·2	166·6	178·8	191·1
	Sat. ...	93·8	94·3	94·8	95·4	96·4	97·4	98·3	98·5	100·7	102·0	103·4	104·8	106·1	107·3	108·5	109·8	110·8	111·9
1977	Mars ...	324·6	332·4	340·2	347·5	355·3	2·8	10·4	17·7	24·9	31·9	38·3	45·7	52·5	59·0	65·2	71·3	77·3	82·8
	Merc. ...	16·7	22·7	18·2	13·9	14·5	26·4	42·1	60·1	78·9	97·5	115·2	130·8	142·1	144·9	139·1	133·5	137·9	149·9
	Jup. ...	36·6	38·7	41·1	43·3	45·7	48·1	50·5	52·8	55·1	57·4	59·6	61·6	63·7	65·5	67·0	68·5	69·6	70·4
	Ven. ...	349·1	345·3	345·5	348·9	355·4	3·0	12·1	21·7	32·0	42·7	54·0	65·2	76·6	88·3	100·1	111·9	123·9	136·2
	Sat. ...	107·6	107·8	108·0	108·3	108·1	109·9	110·6	111·7	112·8	114·8	115·3	116·6	117·8	119·1	120·4	121·8	122·9	124·0
	Eng. date ...	Ap 14	Ap 24	My 4	My 14	My 24	Je 3	Je 13	Je 23	Jl 3	Jl 13	Jl 23	Au 2	Au 12	Au 22	S 1	S 11	S 21	O 1
1978	Mars ...	97·8	101·2	105·5	110·3	115·1	120·3	125·8	131·2	137·2	143·0	148·9	155·2	161·4	167·7	174·1	180·6	187·5	194·1
	Merc. ...	0·5	353·3	354·6	4·6	19·8	37·4	55·3	74·3	92·2	109·7	121·1	127·0	123·0	116·5	119·2	129·8	144·8	161·6
	Jup. ...	64·7	66·3	68·1	70·0	72·1	74·2	76·5	78·7	81·1	83·4	85·6	88·0	90·2	92·3	94·4	96·4	98·2	99·8
	Ven. ...	19·9	32·2	44·4	56·5	68·6	80·4	92·2	104·0	115·6	127·2	138·5	149·6	160·2	170·8	180·7	189·7	197·8	204·0
	Sat. ...	121·5	121·4	121·3	121·3	121·9	122·5	123·0	123·9	124·8	125·8	127·0	128·2	129·5	130·8	132·1	133·3	134·5	135·7
	Eng. date ...	Ap 14	Ap 24	My 4	My 14	My 24	Je 3	Je 13	Je 23	Jl 3	Jl 13	Jl 23	Au 2	Au 12	Au 22	S 1	S 11	S 21	O 1
1979	Mars ...	341·4	349·3	356·8	4·5	12·0	19·3	26·6	33·9	41·2	48·2	54·9	61·8	68·4	75·1	81·5	87·7	94·0	100·0
	Merc. ...	334·9	343·2	357·3	14·8	33·4	52·5	71·0	88·0	101·5	109·1	106·8	99·6	100·0	109·4	123·8	140·5	158·3	175·9
	Jup. ...	94·3	95·0	95·9	97·2	98·8	100·4	102·3	104·4	106·4	108·5	110·8	113·0	115·2	117·4	119·7	121·9	123·9	126·1
	Ven. ...	325·2	337·5	349·5	1·7	13·7	26·0	38·2	50·4	62·4	74·8	86·8	99·2	111·4	123·7	136·0	148·3	160·7	173·1
	Sat. ...	135·3	135·0	134·7	134·5	134·8	135·1	135·4	136·2	137·0	137·7	138·8	139·9	141·1	142·3	143·5	144·8	146·1	147·4
	Eng. date ...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1980	Mars ...	122·8	124·0	126·3	129·3	133·0	137·1	141·9	146·8	152·2	157·8	163·7	169·5	175·7	181·9	188·5	195·0	201·7	208·6
	Merc. ...	335·5	352·1	10·1	29·2	48·0	65·5	80·4	89·7	89·8	82·3	80·4	88·3	102·4	119·0	136·8	154·7	172·1	187·5
	Jup. ...	125·6	125·3	125·3	125·6	126·3	127·1	128·4	129·8	131·4	133·1	135·1	137·1	139·2	141·4	143·5	145·7	148·0	150·2
	Ven. ...	45·5	54·5	61·9	67·4	70·0	68·5	63·9	57·5	53·1	52·7	56·0	62·0	69·8	79·0	88·6	99·0	109·9	120·9
	Sat. ...	149·0	148·5	148·0	147·5	147·5	147·6	147·6	148·2	148·8	149·3	150·3	151·2	152·2	153·4	154·6	155·8	157·1	158·4
	Eng. date ...	Ap 14	Ap 24	My 4	My 14	My 24	Je 3	Je 13	Je 23	Jl 3	Jl 13	Jl 23	Au 2	Au 12	Au 22	S 1	S 11	S 21	O 1
1981	Mars ...	357·3	4·7	12·4	19·7	27·0	34·3	41·5	48·5	55·5	62·3	69·3	76·0	82·6	89·7	95·5	101·8	108·0	114·1
	Merc. ...	347·8	6·4	25·3	43·1	58·8	69·7	71·7	65·2	61·3	67·9	80·8	97·1	115·0	133·3	151·1	168·4	180·6	187·7
	Jup. ...	158·8	157·7	156·8	156·1	155·7	155·7	155·9	156·6	157·4	158·6	159·9	161·5	163·3	165·1	167·1	169·2	171·4	173·5
	Ven. ...	1·7	13·8	26·4	38·6	51·2	63·3	75·4	87·5	99·6	111·7	123·8	135·8	147·6	159·8	171·5	183·3	195·0	206·6
	Sat. ...	162·4	161·7	161·0	160·4	160·2	160·0	159·8	160·1	160·4	160·8	161·6	162·4	163·2	164·3	165·4	166·5	167·7	168·9
	Eng. date ...	Ap 14	Ap 24	My 4	My 14	My 24	Je 3	Je 13	Je 23	Jl 3	Jl 13	Jl 23	Au 2	Au 12	Au 22	S 1	S 11	S 21	O 1
1982	Mars ...	160·0	157·3	156·1	156·6	157·4	159·9	162·9	166·8	171·0	175·8	181·1	186·5	192·4	198·7	204·8	211·2	218·0	224·9
	Merc. ...	2·4	20·5	36·5	46·6	52·7	47·0	42·0	46·9	58·8	74·8	92·8	111·3	129·5	146·4	161·0	170·3	170·6	163·7
	Jup. ...	192·9	191·6	190·4	189·0	187·8	186·9	186·2	185·8	185·8	186·0	186·6	187·5	188·6	189·9	191·4	193·2	195·1	197·1
	Ven. ...	313·6	324·0	335·3	346·6	358·1	9·6	21·5	33·2	45·0	56·9	69·0	81·0	93·2	105·4	117·6	129·7	142·2	154·4
	Sat. ...	175·4	174·7	174·0	173·2	172·8	172·4	172·0	172·1	172·2	172·2	172·8	173·4	174·1	175·0	176·0	177·0	178·2	179·4
	Eng. date ...	Ap 14	Ap 24	My 4	My 14	My 24	Je 3	Je 13	Je 23	Jl 3	Jl 13	Jl 23	Au 2	Au 12	Au 22	S 1	S 11	S 21	O 1
1983	Mars ...	12·4	19·8	26·9	34·2	41·3	48·4	55·4	62·0	69·0	75·7	82·3	89·1	95·4	102·1	108·4	114·6	121·1	127·3
	Merc. ...	14·5	27·5	33·3	29·3	23·0	25·7	37·0	52·6	70·5	89·2	107·7	125·3	140·6	151·6	154·6	148·5	143·2	147·9
	Jup. ...	226·6	225·9	224·9	223·7	222·4	221·0	219·7	218·5	217·7	216·9	216·4	216·4	216·7	217·3	218·2	219·3	220·7	222·3
	Ven. ...	37·1	48·7	60·2	71·5	82·5	93·2	103·2	112·6	121·2	128·3	133·5	135·9	134·2	128·6	122·8	119·2	119·4	123·2
	Sat. ...	188·1	187·3	186·5	185·7	185·2	184·7	184·1	184·0	183·9	183·7	184·1	184·5	185·0	185·8	186·6	187·5	188·6	189·7
	Eng. date ...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1984	Mars ...	213·6	212·0	209·7	206·3	203·0	200·6	199·3	199·7	200·7	203·5	206·5	210·6	215·2	220·3	226·0	231·7	238·2	244·7
	Merc. ...	13·7	11·8	4·6	5·0	15·1	30·2	47·9	66·6	85·4	103·6	119·7	132·4	137·7	133·5	126·8	128·7	139·7	154·1
	Jup. ...	258·8	259·1	259·1	258·8	258·2	257·2	256·0	254·8	253·5	252·1	250·9	249·8	249·0	248·5	248·4	248·6	249·1	250·0
	Ven. ...	343·1	355·4	7·8	20·2	32·4	44·8	56·9	69·3	81·5	93·7	105·9	118·1	130·4	142·6	154·9	167·2	179·5	191·7
	Sat. ...	200·5	199·7	198·9	198·2	197·5	196·8	196·2	195·9	195·6	195·2	195·4	195·6	195·9	196·6	197·3	198·0	199·0	200·0
	Eng. date ...	Ap 14	Ap 24	My 4	My 14	My 24	Je 3	Je 13	Je 23	Jl 3	Jl 13	Jl 23	Au 2	Au 12	Au 22	S 1	S 11	S 21	O 1
1985	Mars ...	27·2	34·1	41·0	48·1	54·8	61·6	68·4	75·1	81·5	88·2	94·9	101·3	107·7	114·2	120·6	127·0	133·2	139·6
	Merc. ...	347·1	345·1	352·9	7·5	24·9	43·4	62·6	80·9	98·2	112·0	119·6	117·7	110·1	109·7	119·3	133·3	150·0	167·7
	Jup. ...	288·8	290·2	291·3	292·3	292·8	292·9	292·8	292·3	291·6	290·5	289·2	287·8	286·4	285·2	284·1	283·1	282·6	282·2
	Ven. ...	345·5	342·4	343·5	347·9	354·5	2·6	11·9	21·7	32·1	43·0	54·3	65·6	77·1	88·7	100·4	112·5	124·5	136·6
	Sat. ...	212·6	211·9	211·2	210·4	209·6	208·8	208·1	207·7	207·3	206·8	206·8	206·7	206·7	207·2	207·7	208·2	209·1	210·0
	Eng. date ...	Ap 14	Ap 24	My 4	My 14	My 24	Je 3	Je 13	Je 23	Jl 3	Jl 13	Jl 23	Au 2	Au 12	Au 22	S 1	S 11	S 21	O 1
1986	Mars ...	253·6	257·9	262·0	265·4	267·8	269·6	270·3	269·5	268·1	265·1	262·3	260·7	259·6	260·3	262·2	265·1	269·1	273·6
	Merc. ...	332·8	345·5	2·3	20·6	39·7	58·6	75·6	90·8	100·5	100·1	92·8	90·8	98·8	112·1	128·7	147·0	164·3	181·5
	Jup. ...	217·4	319·4	321·4	323·2	324·7	326·1	327·1	327·9	328·3	328·5	328·2	327·5	326·7	325·5	324·2	323·0	321·4	320·2
	Ven. ...	20·5	32·8	45·0	57·1	69·1	81·1	92·8	104·5	116·0	127·6	138·7	149·8	160·6	170·8	180·6	189·3	196·9	203·7
	Sat. ...	224·3	223·7	223·1	222·5	221·7	220·9	220·1	219·5	218·9	218·2	218·0	217·8	217·7	218·0	218·3	218·6	219·4	220·2

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vrsch.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·8	66·7	80·0	93·3	106·7	120·0

V-B—*cont*

Mars, A.D. 1637—A.D. 1999; Mercury A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

	180	190	200	210	220	230	240	250	260
	O 11	O 21	O 31	N 10	N 20	N 30	D 10	D 20	D 30
	62·7	65·6	67·4	68·3	67·7	65·7	63·0	59·6	56·4
	168 8	167 1	176·5	190·2	206 2	223·6	240·7	257·3	271·6
	354·5	353·1	351·8	350·7	349·8	349·3	349·2	349 3	349·9
	130 1	138·0	147·0	156·7	167·3	178·3	188·6	201·3	213·1
	100·2	100·5	100·8	101·2	101·0	100·8	100·7	100·0	99·3
	O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29
	187·5	194·3	201·2	208·0	215·0	222·2	229·3	236·6	243·8
	157·3	170 2	186·1	203·2	220·6	237·1	252·1	263 1	266·8
	35·1	34·2	33·0	31·8	30·3	29·0	27·7	26·7	26·0
	203·4	215·6	227·8	239·9	252·1	264·0	275·8	287·6	299·2
	112·9	113·5	114·1	114·8	114·9	115·0	115·0	114·5	114·0
	88·1	93·0	97·6	101·4	104·8	107·3	109·0	109·5	108·7
	165 3	182·4	199·9	216·9	232·4	244 9	250·7	247·7	240·2
	71·0	71·1	71·0	70·5	69·8	68 6	67·3	66·1	64·7
	148·3	160·6	172·7	185·1	197·7	210·2	222·7	235·6	248·2
	125·2	126·0	126·8	127·7	128·0	128·3	128·7	128·5	128·3
	201·1	208·0	214·8	222·1	229·2	236·5	243·9	251·4	258·9
	178·2	196·6	212·8	226·2	234·5	234·0	226·9	223·3	230·2
	101·3	102·5	103·4	104·0	104·3	104·3	104·0	103·3	102·3
	207·4	208·1	204·7	198·9	193·7	192·3	194·7	201·0	208·4
	187·0	138·0	139 0	140·0	140·6	141·2	141·7	141·7	141·7
	O 11	O 21	O 31	N 10	N 20	N 30	D 10	D 20	D 30
	105·8	111·4	116·5	121·6	126·4	130·8	134·6	137·8	140·3
	192·7	207·2	217·4	219·3	212·2	207·9	212·5	224·4	239·7
	128·0	129 7	131·4	132·8	134·0	134·9	135·6	135·9	135·9
	185·6	198·1	210·5	223·0	235·5	248·1	260·4	272·9	285·2
	148·6	149·7	150·8	151·9	152·6	153·3	154·1	154·3	154·5
	O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29
	215·4	222·6	229·6	237·0	244·4	251·8	259·5	267·1	274·7
	199·3	204·0	199·3	192·7	194·6	204·8	219·4	235 9	253·4
	152·2	154·3	156·4	158·3	160·1	161·8	163·2	164·3	165·3
	132·5	144·2	156·0	168·1	180·2	192·5	204·8	217·2	229 8
	159·6	160·7	161·8	163·0	163·9	164·8	165·7	166·1	166·5
	120·2	126·1	131·8	137·5	142·9	148·5	153·2	158·0	162·3
	185·7	178·6	177·0	185·8	199·4	2 5·5	232·8	250·2	266·5
	175·7	177 9	180·1	182·2	184·3	186·4	188·3	190·0	191·7
	218·0	229·2	240·1	250·3	260·0	268·9	276·3	281·8	284·2
	170·2	171·4	172·6	173·8	174·8	175·8	176·8	177·4	178·0
	232·0	239·0	246·3	253·6	261·0	268·6	276·3	283·9	291·6
	160·0	167·0	179·3	195·1	212·2	229·6	246·2	261·3	272 6
	199·2	291·4	203·6	295·8	208·0	210 2	212·4	214·6	216·6
	167·0	179·4	191·9	204·5	216·9	229·5	242·2	254·8	267·4
	180·5	181·6	182·9	184·2	185·3	186·4	187·5	188·3	189·1
	O 11	O 21	O 31	N 10	N 20	N 30	D 10	D 20	D 30
	133·5	139·4	145·5	151·5	157·2	163·0	168 6	174·2	179·7
	159·4	174·7	191·8	209·2	226·2	241·7	253·9	259·9	256·5
	224·1	226·0	228·0	230·1	232·4	234·5	236 9	239·1	241·4
	129·5	137·5	147·0	156·9	167·5	178·6	190·1	201·7	213·5
	190·8	192·0	193 2	194·4	195·5	196·6	197·8	198 7	199·6
	O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29
	251·5	258·4	265·5	272·7	280 0	287·3	294·8	302·3	309·9
	171·0	188·5	205·9	222 0	235 5	243·3	242·7	235·2	232 7
	251·1	252·4	254·1	255 8	257·8	259·8	262·0	264 3	266·5
	203·8	216·0	228·3	240·3	252·5	264 5	276 2	288·1	299·4
	201·0	202·2	203·4	204·5	205·7	206·9	208·0	209·0	210·0
	145·7	152·0	158·2	164·3	170·6	176·7	182·8	188·2	194·9
	185·3	202·0	216·3	226·4	228·3	221·7	216·8	221·7	233·4
	282·3	282·7	283·5	284·4	285·8	287·3	289·1	290·9	293·0
	148·8	161·1	173·3	185·9	198·4	21 ·8	223·3	235·8	248·8
	210·9	212·0	213·1	214·3	215·5	216·7	217·8	218·9	220 0
	278·3	284·4	290·4	296·8	303 2	309·9	316·4	323·0	330·0
	196·9	208 7	213·0	208 1	201·9	203·4	213 8	228·4	215·1
	315·2	318·3	317·3	317·6	318·0	318·4	319·3	320·6	322·0
	205·7	205·9	201 2	194·8	190·3	189 8	193·7	199·8	207·9
	220·9	222·0	223·0	224·0	225 2	225·4	227·5	228·6	229·7

	270	280	290	300	310	320	330	340	350	360
	Ja 9	Ja 19	Ja 29	F 8	F 18	F 28	Mr 9	Mr 19	Mr 29	Ap 8
1976	53·9	52·5	52·8	53·9	56·2	58·9	62·6	66·6	71·1	76·0
	281·1	282·6	275·3	271·7	277·5	290·2	306·3	324·2	342·8	0·8
	350·7	351·8	353 2	355·0	356·8	358·7	0·9	3·2	5·4	7·8
	225·0	237·3	249·2	261·7	274·0	286·4	298 6	311·1	323·5	335·9
	98·6	97·7	96·8	96·0	95·4	94·8	94·1	93·9	93·8	93·7
	Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
1977	251·3	258·6	266·3	273·9	281·5	289·2	297·1	304·9	312·6	320·4
	261·4	255·3	258·5	269·9	285·0	302·3	320·5	338·6	356·0	10·8
	25·5	25·4	25·8	26·3	27·2	28·5	30·0	31·6	33·4	35·5
	310·4	321·3	331·2	340·8	349·4	355·9	1·3	1·7	358·5	352·4
	113·5	112·7	111·9	111·2	110·4	109·6	108·8	108·4	108·0	107·6
1978	106·2	103·0	99·3	95·5	92·6	90·9	90·4	91·2	93·2	95·9
	240 6	250·2	264·2	280·9	298·6	316·9	334·0	349·4	0·6	3·4
	63·4	62·3	61·3	60·7	60·4	60·5	60·9	61·6	62 6	63·9
	260·9	273·5	286·1	298·9	311·2	324·4	336·8	349·3	1·6	11·0
	128·0	127·3	126·6	125·9	125·2	124·5	123·7	123·1	122·5	121·9
1979	266·6	274·4	282·1	289·8	297·7	305·5	313·5	321·5	329·2	337·2
	244·2	260·1	277·6	295·5	312·8	328·5	340·2	345·3	340·1	354·0
	101·1	99·8	98·5	97·1	96·1	95·0	94·1	93·8	93·6	93·9
	217·1	227·1	237·5	248·4	259·9	271·4	283·0	294·8	306·7	319·5
	141·7	141·2	140·7	140·2	139·4	138·6	137 8	137·1	136·4	135·6
1980	Ja 9	Ja 19	Ja 29	F 8	F 18	F 28	Mr 9	Mr 19	Mr 29	Ap 8
	141·8	142·7	141·2	139·1	135·9	131·9	128·5	125·2	123·0	122·7
	256·8	274·3	291·7	307·6	320·5	327·0	323·7	316·8	317·9	328·0
	135·7	135 0	134·0	132·9	131·6	130·3	128·9	127·7	126·6	125·8
	297·7	309·8	321·9	333·9	345·8	357·6	8·8	19·9	30·5	40·7
	154·8	154·5	154·2	153·9	153·2	152,5	151·7	151·0	150·2	149·4
1981	Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
	282·6	290·3	2 8·4	306·2	314·0	321·3	329·8	337·7	345·3	353·0
	270·7	287·1	300·7	308 6	307·9	300·4	298·9	306·8	321·1	388·1
	165·9	166·3	166·3	166·0	165·3	164·4	163·5	162 1	160·8	159·5
	242·2	254·8	267·2	280·0	292·5	305·1	317·7	330 1	342·6	355·0
	167·0	166·9	166·9	166·8	166·2	165·6	165·1	164·3	163·5	162·7
1982	166·4	169·7	172·3	174·3	174·8	174·6	172·4	169·2	165·4	161·6
	281·1	291·0	291·9	285·3	281·1	287·1	300·0	316 1	334·0	352·8
	193·1	194 3	195·3	195·9	196·3	196·5	196·1	195·5	194·5	193·5
	283·0	278·1	272·3	268·7	269·8	273·6	280 4	288·6	298·0	307·9
	178·7	178·9	179·1	179·2	178·8	178·4	178·1	177·3	176·5	175·8
1983	299·4	307·3	315·0	322·8	330·5	338·2	346·0	353·5	0·9	8·4
	276·1	270·2	264·7	268·3	279 0	294·6	311 9	330·3	348·7	5·8
	218·5	220·3	222·0	223·6	224·9	225·8	226·6	226·9	227·1	226·9
	280·5	292·7	305·2	317·6	330·0	342·3	354·6	6·7	18·8	31·0
	189·9	190·8	190·5	190·9	190·7	190·5	190·4	189·8	189·2	188·6
1984	Ja 9	Ja 19	Ja 29	F 8	F 18	F 28	Mr 9	Mr 19	Mr 29	Ap 8
	185 0	190·1	194·8	199·4	203·5	207·0	210·1	212·4	213·8	214·2
	249·3	250·1	259·5	273·7	290 8	308·6	326·9	344·2	359·7	11·0
	243·5	245·8	247·9	249·9	251 9	253·6	255 2	256·6	257·7	258·4
	225·4	237·6	249·7	262·2	274·6	286 9	299·2	311·7	324·1	336·5
	200·6	201·1	201·6	202·2	202·2	202·3	202·3	201·8	201·3	200·8
1985	Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
	317·4	324·8	332·5	340·7	347·2	354·7	1·8	4·3	16·3	23·4
	239·8	253·5	2·9·6	287·2	305·1	322·8	338·5	350·8	355·5	351 1
	268·9	271·1	273·4	275·8	278·1	280·3	282·4	284·4	286·3	288·0
	310·6	321·1	331·4	340·6	348·6	354·9	358·4	358·7	354·7	348·4
	211·0	211·7	212·4	213·2	213·4	213·6	213·8	213·5	213·2	212·9
1986	201·2	206·9	212 8	218·7	224 5	230·2	235·8	241·1	246·2	251·9
	248·8	266·0	284·1	301·2	317·4	230·3	337·1	331·6	327·4	327·7
	295 2	297·4	299·9	302·2	304·5	306·9	309·3	311·7	313·9	316·3
	261·3	273·9	286·5	299·4	311·8	324·4	336·8	349·3	1·6	14·0
	221·1	222·0	222·9	223·7	224·1	224 5	224·8	225·0	225·2	224·5
1987	336·8	343·8	350·7	357 6	4·4	11·3	17·9	24·8	31·4	38·2
	262·8	280·9	296·6	310·3	318·9	317·9	310·6	308·7	317·4	331·0
	323·6	325·5	327·5	329·6	331·8	334·2	336·5	338·9	341·4	343·8
	217·1	227·1	237·6	248·8	260·1	271·7	283·6	295·5	307·3	319·5
	230·9	231·0	232·9	233·8	234·4	235·0	235·6	235·7	235·8	235·8

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa	Anur.	Jyesh.	Mula.	P. Ash.	U. Ash.	Srav.	Dhan.	Satab.	P. Bhad.	U. Bhad.	Revati
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE

Geocentric Places of Mars, Mercury, Jupiter, Venus and Saturn for every tenth day of current cycle.

Venus, A.D. 1765—A.D. 1999;

Day of I.S.Y.		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
	Eng. date ...	Ap 14	Ap. 24	My 4	My 14	My. 24	Je 3	Je 13	Je 23	Jl 3	Jl 13	Jl 23	Au 2	An 12	Au 22	S 1	S 11	S 21	O 1
1987	Mars ...	41·7	48·3	54·9	61·5	68·1	74·6	81·1	87·6	94·0	100·4	106·8	113·2	119·7	126·1	132·4	138·8	145·2	151·5
	Merc. ...	339·9	358·0	16·7	35·5	53·5	69·1	80·2	82·4	76·0	72·1	78·0	90·8	107·2	124·9	143·1	160·6	176·9	189·9
	Jup. ...	345·3	347·7	350·0	352·3	354·4	356·6	358·5	0·2	1·7	2·9	3·9	4·7	4·9	4·9	4·5	3·8	2·8	1·4
	Ven. ...	325·7	337·8	350·0	2·2	14·2	26·5	38·8	50·9	63·0	75·3	87·4	99·7	111·9	124·2	136·5	149·0	161·2	173·7
	Sat. ...	235·7	235·5	235·3	234·2	233·4	232·6	231·9	231·2	230·5	229·7	229·3	228·9	228·6	228·0	229·0	229·1	229·7	230·3
	Eng. date ...	Ap 13	Ay 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	An 11	Au 21	Au 31	S 10	S 20	S 30
1988	Mars ...	279·2	286·0	292·3	298·8	305·2	311·2	317·1	322·8	328·1	332·8	337·1	340·2	342·4	343·2	342·8	340·7	338·0	335·7
	Merc. ...	354·2	12·5	30·9	47·1	59·4	63·9	58·8	52·9	57·1	69·3	85·1	103·0	121·4	139·6	156·3	170·7	179·3	180·2
	Jup. ...	12·8	15·2	17·6	20·1	22·5	24·8	27·1	29·4	31·5	33·4	35·2	36·9	38·3	39·5	40·4	40·8	41·1	41·0
	Ven. ...	45·5	54·2	61·3	66·0	67·8	66·1	60·1	53·8	50·4	51·0	55·0	61·2	69·5	78·8	88·8	99·3	110·3	121·5
	Sat. ...	246·9	246·6	246·3	245·9	245·3	244·7	244·0	243·2	242·4	241·7	241·1	240·5	240·0	239·9	239·8	239·8	240·2	240·6
1989	Mars ...	56·6	62·6	69·0	75·0	81·1	87·5	93·8	100·0	106·2	112·5	118·9	125·1	131·5	137·8	144·1	150·4	156·9	163·6
	Merc. ...	8·3	25·0	38·3	45·5	41·1	34·3	36·7	47·4	62·8	80·8	99·6	117·6	135·3	150·5	161·1	164·4	158·6	153·1
	Jup. ...	40·4	42·5	44·7	47·0	49·3	51·7	54·1	56·4	58·7	61·0	63·3	65·4	67·4	69·3	71·1	72·5	73·8	74·7
	Ven. ...	2·1	14·7	27·0	39·3	51·5	63·9	76·0	85·1	100·1	112·2	124·3	136·2	148·3	160·1	172·0	183·7	195·4	207·0
	Sat. ...	257·9	257·8	257·6	257·5	256·9	256·3	255·7	254·9	254·1	253·3	252·7	252·1	251·4	251·2	251·0	250·7	251·0	251·3
1990	Mars ...	299·3	306·8	314·3	321·3	329·2	336·2	343·7	350·6	357·6	4·3	10·6	17·1	22·8	28·6	33·7	38·0	42·0	46·2
	Merc. ...	16·7	24·6	22·8	15·6	16·0	25·7	40·4	58·2	76·8	95·2	113·3	129·5	142·4	147·4	143·2	136·6	138·8	148·7
	Jup. ...	68·6	70·0	71·8	73·7	75·7	77·8	80·0	82·2	84·5	86·9	89·1	91·3	93·6	95·8	97·9	99·9	101·9	103·6
	Ven. ...	313·8	324·3	335·5	347·0	358·6	10·2	22·1	33·7	45·6	57·5	69·6	81·6	93·8	106·0	118·1	130·4	142·7	155·1
	Sat. ...	268·9	269·0	269·1	269·1	268·7	268·3	267·8	267·0	266·2	265·5	264·8	264·1	263·3	262·9	262·5	262·0	262·1	262·1
	Eng. date ...	Ap 14	Ap 24	My 4	My 14	My 24	Je 3	Je 13	Je 23	Jl 3	Jl 13	Jl 23	Au 2	Au 12	Au 22	S 1	S 11	S 21	O 1
1991	Mars ...	71·9	77·6	83·1	88·9	94·7	100·6	106·6	112·5	118·7	124·8	130·9	137·3	140·5	150·0	156·2	162·7	169·4	175·8
	Merc ...	5·3	357·7	355·9	3·9	18·1	35·3	53·9	73·0	91·5	108·3	122·0	129·6	127·7	120·2	120·2	128·7	143·1	159·8
	Jup. ...	98·4	99·0	99·9	101·0	102·4	104·1	105·9	107·7	109·8	111·9	114·0	116·2	118·6	120·8	123·0	125·2	127·3	129·4
	Ven. ...	37·5	49·1	60·6	71·9	82·7	93·3	103·4	112·6	120·7	127·6	132·4	133·7	131·0	125·3	119·3	116·5	117·7	122·2
	Sat. ...	279·7	280·0	280·3	280·5	280·2	279·9	279·7	279·0	278·3	277·6	276·8	276·0	275·3	274·7	274·1	273·5	273·4	273·3
	Eng. date ...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl. 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1992	Mars ...	317·8	325·4	333·3	340·7	348·5	355·9	3·5	10·7	18·8	25·1	32·1	39·0	45·4	51·9	58·0	64·0	69·7	74·8
	Merc. ...	336·6	342·5	355·8	12·5	30·9	50·1	68·9	86·4	101·2	110·7	111·4	104·0	101·2	108·4	122·2	138·4	156·1	173·8
	Jup. ...	130·0	129·6	129·5	129·6	130·1	130·9	132·0	133·3	134·9	136·6	138·4	140·5	142·5	144·6	146·7	149·0	151·2	153·3
	Ven. ...	343·5	355·8	8·3	20·4	32·9	45·3	57·5	69·8	82·1	94·2	106·8	118·6	130·9	143·1	155·4	167·5	180·0	192·3
	Sat. ...	290·6	291·0	291·4	291·9	291·8	291·7	291·7	291·2	290·7	290·2	289·4	288·6	287·7	287·0	286·3	285·7	285·4	285·1
1993	Mars ...	89·7	94·0	98·7	103·8	109·1	114·6	120·1	125·9	131·7	137·7	143·8	149·8	156·4	162·5	168·9	175·5	182·1	188·9
	Merc. ...	334·3	350·0	8·1	26·9	48·1	63·8	79·6	91·0	93·5	87·0	82·7	88·7	100·9	117·0	134·5	152·6	170·3	186·4
	Jup. ...	163·6	162·3	161·2	160·4	160·0	159·8	159·4	160·4	161·1	162·1	163·4	164·9	166·6	168·4	170·4	172·5	174·5	176·7
	Ven. ...	342·0	340·0	341·9	346·9	354·1	2·6	11·9	21·9	32·5	43·3	54·5	66·0	77·5	89·3	101·0	113·0	125·1	137·0
	Sat. ...	304·1	302·0	302·6	303·3	303·5	303·7	303·9	303·5	303·1	302·8	302·1	301·4	300·6	299·8	299·0	298·2	297·7	297·2
1994	Mars ...	334·9	342·6	350·4	358·0	5·6	13·0	20·6	27·6	35·1	42·0	49·0	55·7	62·5	69·1	75·5	81·7	87·9	93·5
	Merc. ...	345·5	4·0	22·8	41·2	57·6	70·3	75·0	69·7	63·9	68·3	79·3	95·1	112·7	131·0	148·9	165·9	180·1	189·2
	Jup. ...	197·7	196·4	195·0	193·7	192·5	191·3	190·6	190·1	189·9	190·1	190·4	191·2	192·2	193·5	194·9	196·6	198·6	200·5
	Ven. ...	21·0	33·4	45·5	57·5	69·6	81·4	93·3	105·0	116·6	127·9	139·1	149·1	160·6	170·8	180·4	188·9	196·2	201·4
	Sat. ...	312·2	313·1	314·0	314·8	315·2	315·6	316·1	315·9	315·7	315·6	315·0	314·4	313·8	313·0	312·0	311·4	310·7	310·0
	Eng. date ...	Ap 14	Ap 24	My 4	My 14	My 24	Je 3	Je 13	Je 23	Jl 3	Jl 13	Jl 23	Au 2	Au 12	Au 22	S 1	S11	S 21	O 1
1995	Mars ...	112·0	114·2	117·4	121·4	125·6	130·3	135·1	140·5	146·0	151·8	157·7	163·6	169·8	176·2	182·5	188·9	195·9	202·7
	Merc. ...	0·4	18·7	35·4	48·9	55·5	52·2	45·5	47·3	58·0	73·3	90·7	109·4	127·5	144·9	160·2	171·1	174·1	167·7
	Jup. ...	231·2	230·5	229·7	228·6	227·3	225·9	224·6	223·4	222·2	221·5	220·9	220·7	220·9	221·3	222·0	223·0	224·4	225·9
	Ven. ...	326·2	338·2	350·3	2·4	14·7	26·9	39·2	51·3	63·4	75·7	87·8	100·2	112·5	124·7	137·1	149·3	161·6	174·3
	Sat. ...	323·4	324·4	325·4	326·5	327·1	327·7	328·3	328·4	328·5	328·5	328·1	327·7	327·2	326·4	325·6	324·8	324·0	323·2
	Eng. date ...	Ap 13	Ap 23	My 3	My 13	My 23	Je 2	Je 12	Je 22	Jl 2	Jl 12	Jl 22	Au 1	Au 11	Au 21	Au 31	S 10	S 20	S 30
1996	Mars ...	351·1	358·8	6·2	13·9	21·2	28·6	35·8	43·1	49·9	57·1	63·7	70·5	77·1	83·7	90·2	96·5	102·7	108·7
	Merc. ...	13·2	27·4	35·3	34·4	26·9	26·6	35·8	50·8	68·4	87·1	105·4	123·5	139·8	152·1	157·3	153·5	146·5	147·9
	Jup. ...	263·0	263·5	263·7	263·5	263·0	262·3	261·2	259·9	258·6	257·3	256·0	254·8	253·9	253·3	253·0	253·1	253·4	254·1
	Ven. ...	45·3	53·8	60·2	64·6	65·3	62·5	56·3	50·7	48·0	49·3	53·9	61·0	69·5	78·8	89·0	99·7	110·5	121·8
	Sat. ...	334·7	335·8	336·9	338·1	338·9	339·7	340·6	340·9	341·2	341·6	341·4	341·2	340·9	340·2	339·5	338·9	338·1	337·3
1997	Mars ...	143·5	142·5	142·7	144·4	146·9	150·0	153·7	158·1	162·9	168·3	173·8	179·5	185·5	191·8	198·2	204·6	211·3	218·8
	Merc. ...	14·9	16·1	9·0	6·4	14·8	28·4	45·6	64·0	83·1	101·4	118·3	132·0	139·7	137·7	131·9	130·0	138·9	152·3
	Jup. ...	292·8	294·4	295·6	296·5	297·4	297·7	297·7	297·5	296·8	295·8	294·7	293·3	291·9	290·6	289·4	288·3	287·6	287·2
	Ven. ...	2·8	15·2	27·5	39·8	52·1	64·2	76·5	88·5	100·7	112·6	124·8	136·7	148·8	160·6	172·4	184·3	195·9	207·2
	Sat. ...	346·1	347·3	348·5	349·8	350·9	351·9	352·9	353·5	354·1	354·7	354·7	354·8	354·8	354·4	354·0	353·3	352·5	351·7
1998	Mars ...	6·4	13·9	21·2	28·5	35·8	43·0	50·0	56·9	63·9	70·5	77·3	84·0	90·4	96·9	103·5	109·9	116·1	122·1
	Merc. ...	351·6	347·5	353·5	6·0	22·8	41·3	60·3	79·0	96·4	111·7	121·3	121·3	114·3	111·5	119·0	131·6	148·1	165·2
	Jup. ...	321·2	323·3	325·3	327·3	328·9	330·4	331·6	332·5	333·1	333·3	333·4	332·9	332·1	331·2	329·9	328·6	327·1	325·8
	Ven. ...	314·0	324·5	335·9	347·3	359·1	10·7	22·5	34·3	46·2	58·2	70·0	82·2	94·2	106·5	118·6	131·2	143·3	155·7
	Sat. ...	357·7	359·0	0·3	1·6	2·8	4·0	5·1	5·9	6·7	7·6	7·9	8·2	8·6	8·3	8·0	7·8	7·1	6·4
	Eng. date	Ap 14	Ap 24	My 4	My 14	My 24	Je 3	Je 13	Je 23	Jl 3	Jl 13	Jl 23	Au 2	Au 12	Au 22	S 1	S 11	S 21	O 1
1999	Mars ...	192·1	188·9	185·7	182·7	181·1	180·8	181·7	183·8	186·9	190·7	194·9	199·8	205·2	211·0	216·9	223·2	229·7	236·2
	Merc. ...	332·7	344·5	0·4	18·6	37·3	56·4	74·2	89·9	101·3	104·2	97·9	93·2	98·4	110·9	126·8	144·2	162·1	179·7
	Jup. ...	349·1	351·5	353·8	356·2	358·4	0·5	2·6	4·4	6·0	7·4	8·5	9·3	9·7	10·0	9·7	9·2	8·4	7·2
	Ven. ...	38·0	49·5	61·2	72·1	83·0	93·4	103·3	112·5	120·5	126·6	130·6	131·0	127·5	121·2	115·7	113·8	116·0	121·1
	Sat. ...	9·8	11·1	12·4	13·7	15·0	16·3	17·6	18·6	19·6	20·6	21·2	21·8	22·4	22·3	22·3	22·3	21·8	21·8

Mesh.	Vrsh.	Mith.	Kat.	Sim.	Kan.	Tul.	Vroh.	Dhan.	Mak.	Kum.	Min.	Asvn.	Bhar.	Krit.	Rohi.	Mrig.	Ardh.	Punar.	Push.	Asles.
30	60	90	120	150	180	210	240	270	300	330	360	13·3	26·7	40·0	53·3	66·7	80·0	93·3	106·7	120·0

V-B—*cont.*

Mars, A.D. 1637—A.D. 1999; Mercury, A.D. 1645—A.D. 1999; Jupiter, A.D. 1656—A.D. 1999; Saturn, A.D. 1617—A.D. 1999—*cont.*

	180	190	200	210	220	230	240	250	260		270	280	290	300	310	320	330	340	350	360
	O 11	O 21	O 31	N 10	N 20	N 30	D 10	D 20	D 30		Ja 9	Ja 19	Ja 29	F 8	F 18	F 28	Mr 9	Mr 19	Mr 29	Ap 8
	157·9	164·3	170·6	177·2	183·6	190·1	196·4	202·9	209·5	**1988**	215·9	222·6	229·1	235·7	242·3	249·6	255·8	262·3	269·0	275·8
	196·7	194·6	186·9	186·5	194·8	208·4	224·7	241·7	259·5		276·0	290·5	300·2	301·8	291·8	291·1	296·8	309·7	326·1	344·1
	0·2	358·8	357·5	356·2	355·2	354·6	354·2	354·2	354·6		355·2	356·3	357·5	359·0	0·8	2·8	4·8	6·9	9·3	11·6
	186·1	198·7	211·0	223·5	236·0	248·6	260·9	273·4	285·8		298·0	310·4	322·4	334·3	346·1	357·9	9·1	20·0	30·6	40·7
	230·9	231·9	232·9	233·9	235·1	236·3	237·4	238·5	239·6		240·8	241·8	242·8	243·9	244·6	245·3	246·1	246·4	246·7	246·9
	O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
	333·6	333·3	333·7	335·5	338·3	341·8	345·8	350·3	355·2	**1989**	0·3	5·8	11·4	17·0	23·0	28·8	34·9	40·9	47·0	53·2
	172·8	169·4	175·8	188·6	204·4	221·4	238·7	255·7	270·7		281·7	285·5	280·3	274·1	277·6	289·0	304·4	322·1	340·4	358·8
	40·4	39·6	38·5	37·3	35·8	34·4	33·2	32·1	31·1		30·6	30·3	30·4	30·8	31·7	32·7	34·0	35·6	37·4	39·2
	138·0	144·8	156·7	168·6	180·8	193·0	205·3	217·8	230·3		242·8	255·4	267·9	280·6	293·2	305·7	318·3	330·7	343·2	355·6
	241·0	241·9	242·8	243·7	244·8	245·9	247·0	248·2	249·4		250·5	251·6	252·7	253·8	254·7	255·6	256·4	256·9	257·3	257·8
	169·9	176·5	183·2	189·8	196·5	203·2	209·8	216·7	223·6	**1990**	230·5	237·6	244·5	251·8	258·9	268·1	273·5	280·8	288·1	295·4
	157·5	168·8	184·1	201·0	218·3	235·4	256·8	263·4	270·6		266·1	258·6	259·4	268·9	283·2	300·3	318·4	336·8	354·3	10·2
	75·5	75·8	75·9	75·5	74·8	73·9	72·8	71·4	70·2		68·7	67·4	66·3	65·7	65·3	65·1	65·4	65·9	66·7	67·9
	218·3	229·4	240·1	250·4	259·8	268·2	275·0	280·4	281·6		279·5	273·5	268·5	266·1	267·6	272·6	279·8	288·5	298·0	308·0
	251·5	252·2	252·9	253·7	254·7	255·7	256·7	257·9	259·1		260·3	261·5	262·7	263·8	264·7	265·7	266·7	267·3	267·9	268·6
	47·1	47·8	47·5	46·2	43·2	40·0	37·1	35·3	34·4	**1991**	34·7	36·3	38·5	41·6	45·2	49·4	53·9	58·7	63·9	69·1
	163·6	180·2	197·6	215·0	231·0	244·4	252·6	252·0	243·7		241·8	249·6	262·5	278·8	296·5	314·7	332·5	348·5	1·2	6·4
	105·1	106·5	107·4	108·2	108·7	108·8	108·6	108·0	107·2		106·1	104·8	103·5	102·2	100·9	99·8	98·9	98·3	98·0	98·2
	167·6	180·0	192·5	205·1	217·6	230·1	242·9	255·5	268·1		280·7	293·3	305·7	318·2	330·6	342·9	355·2	7·2	19·3	31·4
	262·2	262·8	263·4	263·9	264·8	265·7	266·7	267·9	269·1		270·2	271·4	272·6	273·7	274·8	275·9	277·0	277·8	278·6	279·5
	O 11	O 21	O 31	N 10	N 20	N 30	D 10	D 20	D 30		Ja 9	Ja 19	Ja 29	F 8	F 18	F 28	Mr 9	Mr 19	Mr 29	Ap 8
	182·4	189·1	195·8	202·9	209·7	216·7	223·7	230·8	238·0	**1992**	245·1	252·7	260·2	267·6	275·3	282·7	290·6	298·2	305·9	313·7
	177·2	194·5	211·1	225·5	235·5	237·0	230·2	225·7	230·6		242·7	258·3	275·6	293·4	310·8	327·1	340·4	347·5	344·9	337·6
	131·5	133·8	134·9	136·4	137·8	138·8	139·5	140·1	140·2		140·0	139·6	138·7	137·6	136·4	135·1	133·7	132·4	131·4	130·4
	129·0	137·4	146·9	157·0	168·0	178·8	190·3	202·0	215·9		225·9	238·3	250·5	262·7	275·0	287·5	299·8	312·2	324·7	337·2
	273·2	273·6	274·0	274·4	275·3	276·2	277·0	278·1	279·2		280·3	281·5	282·7	283·9	285·1	286·3	287·4	288·3	289·2	290·1
	O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
	79·6	84·0	87·3	91·2	93·3	94·6	94·8	93·4	91·0	**1993**	87·7	83·3	80·6	77·8	76·7	76·8	78·5	80·7	83·7	87·7
	190·9	206·1	217·7	222·0	217·2	210·6	212·5	223·0	237·8		254·8	272·2	289·5	306·2	320·1	328·4	328·3	320·8	319·1	326·9
	155·5	157·6	159·7	161·7	163·6	165·1	166·6	168·0	169·1		169·8	170·3	170·5	170·3	169·9	169·0	167·9	166·8	165·5	164·1
	204·3	216·6	228·7	240·9	252·8	264·8	276·5	288·2	299·6		310·7	321·1	331·1	340·2	347·9	353·6	356·4	355·7	351·0	344·5
	284·7	284·9	285·1	285·3	286·0	286·7	287·4	288·4	289·4		290·5	291·7	292·9	294·1	295·3	296·5	297·7	298·8	299·9	300·9
	195·6	202·5	209·5	216·5	223·7	230·8	238·0	245·4	252·9	**1994**	260·6	268·2	275·8	283·7	291·3	299·4	307·0	314·8	322·8	330·8
	199·3	206·0	203·6	196·1	195·3	204·2	217·5	233·7	251·2		268·8	285·4	300·2	310·0	311·6	305·2	300·7	307·2	319·7	336·0
	178·9	181·3	183·3	185·5	187·5	189·6	191·6	193·5	195·1		196·8	198·0	199·1	199·9	200·4	200·5	200·4	200·0	199·2	198·2
	149·6	161·7	174·1	186·4	199·1	211·5	224·2	236·8	249·4		262·1	274·6	287·5	300·0	312·5	325·1	337·6	350·0	2·5	14·8
	296·7	296·7	296·7	296·7	297·2	297·7	298·3	299·2	300·1		301·0	302·2	303·4	304·5	305·7	306·9	308·2	309·4	310·6	311·8
	99·2	104·8	109·7	114·5	118·7	122·7	126·1	128·3	129·4	**1995**	129·7	128·8	126·3	123·4	119·2	115·4	112·5	110·6	110·3	111·0
	189·3	181·9	178·9	186·1	197·4	213·6	230·2	247·1	264·7		280·1	291·5	295·2	289·3	283·7	287·6	298·3	314·1	331·7	350·2
	202·5	204·7	206·8	209·0	211·2	213·5	215·6	217·8	219·9		222·0	223·8	225·7	227·2	228·6	229·6	230·6	231·1	231·4	231·4
	203·4	202·2	196·8	191·0	187·4	188·0	192·4	199·1	207·1		216·9	227·2	237·9	249·1	260·5	272·1	283·9	295·9	307·9	319·9
	309·3	309·1	308·9	308·6	308·9	309·2	309·6	310·4	311·2		311·9	313·0	314·1	315·3	316·5	317·7	319·0	320·2	321·4	322·7
	O 11	O 21	O 31	N 10	N 20	N 30	D 10	D 20	D 30		Ja 9	Ja 19	Ja 29	F 8	F 18	F 28	Mr 9	Mr 19	Mr 29	Ap 8
	209·7	216·6	223·8	231·0	238·2	245·9	253·2	260·9	268·5	**1996**	276·3	284·2	291·9	299·8	307·8	315·6	323·5	331·4	339·2	347·1
	162·4	166·7	178·2	193·3	210·3	227·6	244·6	260·1	272·4		278·4	275·1	267·9	268·8	278·4	293·1	310·2	328·2	346·7	4·5
	227·6	229·5	231·5	233·5	235·8	238·0	240·2	242·4	244·8		246·9	249·2	251·4	253·5	255·5	257·4	258·9	260·4	261·6	262·6
	186·5	199·1	211·5	223·9	236·5	248·8	261·4	273·8	286·2		298·4	310·6	322·7	334·7	346·4	357·9	9·2	20·0	30·5	40·4
	322·5	322·1	321·7	321·2	321·3	321·4	321·5	322·1	322·7		323·4	324·4	325·5	326·5	327·7	328·9	330·2	331·5	332·8	334·1
	O 10	O 20	O 30	N 9	N 19	N 29	D 9	D 19	D 29		Ja 8	Ja 18	Ja 28	F 7	F 17	F 27	Mr 9	Mr 19	Mr 29	Ap 8
	114·7	120·6	126·1	131·8	136·9	141·8	146·5	150·7	154·5	**1997**	157·6	160·1	161·4	161·6	160·6	158·6	154·4	150·5	146·9	144·4
	158·6	172·8	189·7	206·9	224·3	240·4	253·8	261·5	260·8		253·2	251·1	258·3	272·3	288·6	306·5	324·7	342·6	358·6	11·5
	255·1	256·4	257·8	259·5	261·5	263·5	265·5	267·8	270·9		272·3	274·7	277·0	279·3	281·6	284·0	286·1	288·2	290·2	292·0
	133·4	145·2	157·1	169·1	181·3	193·7	205·9	218·5	231·0		243·5	256·1	268·7	281·0	293·8	306·4	318·9	331·4	343·8	356·3
	336·4	335·8	335·2	334·6	334·1	334·2	334·1	334·5	334·9		335·4	336·3	337·2	338·0	339·2	340·4	341·6	342·9	344·2	345·4
	225·3	232·3	239·6	246·8	254·4	261·9	269·5	277·1	285·1	**1998**	292·8	299·6	308·5	316·3	324·0	331·8	339·6	347·3	354·9	2·4
	168·7	184·6	203·8	220·3	234·5	244·6	246·0	239·0	234·7		240·1	254·9	267·5	284·8	302·8	320·7	336·9	350·6	357·6	356·0
	287·0	287·2	287·8	288·7	289·9	291·3	293·0	294·8	299·5		299·0	301·2	303·5	305·8	308·2	310·6	312·9	315·4	317·8	320·0
	218·5	229·6	240·0	2·0·2	259·4	267·5	274·0	278·2	279·0		275·5	270·1	264·5	263·6	266·0	271·8	279·2	288·2	297·8	308·2
	350·9	350·1	349·3	348·5	348·1	347·7	347·4	347·6	347·8		347·9	348·6	349·3	350·1	351·1	352·2	353·2	354·5	355·8	357·0
	128·4	134·3	140·3	146·1	151·8	157·6	162·8	168·3	173·4	**1999**	178·0	182·8	186·8	190·6	193·7	195·8	197·4	197·4	196·5	194·0
	183·4	200·0	215·3	226·9	230·9	225·7	219·2	222·0	232·2		246·8	263·9	281·4	299·2	315·8	330·1	339·1	338·6	331·1	320·7
	324·6	323·6	323·1	322·7	322·6	323·1	323·8	324·8	326·2		327·7	329·4	331·3	333·5	335·7	337·9	340·4	342·7	345·2	347·6
	168·2	180·6	193·2	205·7	218·2	230·7	243·5	256·1	268·7		281·4	293·9	306·3	318·7	331·3	343·4	355·8	7·8	19·9	31·9
	5·7	4·9	4·1	3·2	2·6	2·0	1·4	1·3	1·2		1·1	1·6	2·1	2·5	3·4	4·3	5·1	6·4	7·7	8·9
	O 11	O 21	O 31	N 10	N 20	N 30	D 10	D 20	D 30		Ja 9	Ja 19	Ja 29	F 8	F 18	F 28	Mr 9	Mr 19	Mr 29	Ap 8
	243·3	250·4	257·5	264·9	272·3	279·8	287·5	295·1	302·7	**2000**	310·3	318·8	325·7	333·1	340·8	348·2	355·7	3·0	10·2	17·5
	195·5	208·5	215·0	212·6	204·9	204·6	212·9	226·9	243·2		260·4	278·3	295·0	309·6	319·8	321·8	315·0	310·9	316·7	329·8
	5·9	4·5	3·2	1·8	0·7	0·0	359·4	359·1	359·4		359·9	0·7	1·9	3·3	4·9	6·6	8·7	10·9	13·0	15·4
	128·5	137·2	146·8	157·1	168·0	179·2	190·6	202·5	214·4		226·4	238·7	251·0	263·3	275·6	288·0	300·4	312·9	325·2	337·7
	20·7	19·9	19·1	18·2	17·5	16·8	16·0	15·6	15·2		14·9	15·1	15·3	15·6	16·4	17·2	17·9	19·0	20·1	21·3

Mag.	P. Phal.	U. Phal.	Hasta.	Chit.	Svati.	Visa.	Anur.	Jyesh.	Mūla.	P. Ash.	U. Ash.	Śrav.	Dan.	Satab.	P. Bhad.	U. Bhad.	Revati.
133·3	146·7	160·0	173·3	186·7	200·0	213·3	226·7	240·0	253·3	266·7	280·0	293·3	306·7	320·0	333·3	346·7	360·0

TABLE VI.

Ghaṭikās and Palas (Naligais and Vinadis) as Fractions of a day.

N.B.—The same table will serve for minutes and seconds as fractions of an **Hour** or a **Degree**.

Ghaṭikās.					Palas.	Ghaṭikās.					Palas.	Ghaṭikās.					Palas.	Ghaṭikās.				
0	**1**	**2**	**3**	**4**		**5**	**6**	**7**	**8**	**9**		**10**	**11**	**12**	**13**	**14**		**15**	**16**	**17**	**18**	**19**
	·0167	·0333	·0500	·0667	**0**	·0833	·1000	·1167	·1333	·1500	**0**	·1667	·1833	·2000	·2167	·2333	**0**	·2500	·2667	·2833	·3000	·3167
·0003	·0169	·0336	·0503	·0669	**1**	·0836	·1003	·1169	·1336	·1503	**1**	·1669	·1836	·2003	·2169	·2336	**1**	·2503	·2669	·2836	·3003	·3169
·0006	·0172	·0339	·0505	·0672	**2**	·0839	·1005	·1172	·1339	·1505	**2**	·1672	·1839	·2005	·2172	·2339	**2**	·2505	·2672	·2839	·3005	·3172
·0008	·0175	·0342	·0508	·0675	**3**	·0842	·1008	·1175	·1342	·1508	**3**	·1675	·1842	·2008	·2175	·2342	**3**	·2508	·2675	·2842	·3008	·3175
·0011	·0178	·0344	·0511	·0678	**4**	·0844	·1011	·1178	·1344	·1511	**4**	·1678	·1844	·2011	·2178	·2344	**4**	·2511	·2678	·2844	·3011	·3178
·0014	·0180	·0347	·0514	·0680	**5**	·0847	·1014	·1180	·1347	·1514	**5**	·1680	·1847	·2014	·2180	·2347	**5**	·2514	·2680	·2847	·3014	·3180
·0017	·0183	·0350	·0517	·0683	**6**	·0850	·1017	·1183	·1350	·1517	**6**	·1683	·1850	·2017	·2183	·2350	**6**	·2517	·2683	·2850	·3017	·3183
·0019	·0186	·0353	·0519	·0686	**7**	·0853	·1019	·1186	·1353	·1519	**7**	·1686	·1853	·2019	·2186	·2353	**7**	·2519	·2686	·2853	·3019	·3186
·0022	·0189	·0355	·0522	·0689	**8**	·0855	·1022	·1189	·1355	·1522	**8**	·1689	·1855	·2022	·2189	·2355	**8**	·2522	·2689	·2855	·3022	·3189
·0025	·0192	·0358	·0525	·0692	**9**	·0858	·1025	·1192	·1358	·1525	**9**	·1692	·1858	·2025	·2192	·2358	**9**	·2525	·2692	·2858	·3025	·3192
·0028	·0194	·0361	·0528	·0694	**10**	·0861	·1028	·1194	·1361	·1528	**10**	·1694	·1861	·2028	·2194	·2361	**10**	·2528	·2694	·2861	·3028	·3194
·0030	·0197	·0364	·0530	·0697	**11**	·0864	·1030	·1197	·1364	·1530	**11**	·1697	·1864	·2030	·2197	·2364	**11**	·2530	·2697	·2864	·3030	·3197
·0033	·0200	·0367	·0533	·0700	**12**	·0867	·1033	·1200	·1367	·1533	**12**	·1700	·1867	·2033	·2200	·2367	**12**	·2533	·2700	·2867	·3033	·3200
·0036	·0203	·0369	·0536	·0703	**13**	·0869	·1036	·1203	·1369	·1536	**13**	·1702	·1869	·2036	·2203	·2369	**13**	·2536	·2703	·2869	·3036	·3203
·0039	·0205	·0372	·0539	·0705	**14**	·0872	·1039	·1205	·1372	·1539	**14**	·1705	·1872	·2039	·2205	·2372	**14**	·2539	·2705	·2872	·3039	·3205
·0042	·0208	·0375	·0542	·0708	**15**	·0875	·1042	·1208	·1375	·1542	**15**	·1708	·1875	·2042	·2208	·2375	**15**	·2542	·2708	·2875	·3042	·3208
·0044	·0211	·0378	·0544	·0711	**16**	·0878	·1044	·1211	·1378	·1544	**16**	·1711	·1878	·2044	·2211	·2378	**16**	·2544	·2711	·2878	·3044	·3211
·0047	·0214	·0380	·0547	·0714	**17**	·0880	·1047	·1214	·1380	·1547	**17**	·1714	·1880	·2047	·2214	·2380	**17**	·2547	·2714	·2880	·3047	·3214
·0050	·0217	·0383	·0550	·0717	**18**	·0883	·1050	·1217	·1383	·1550	**18**	·1717	·1883	·2050	·2217	·2383	**18**	·2550	·2717	·2883	·3050	·3217
·0053	·0219	·0386	·0553	·0719	**19**	·0886	·1053	·1219	·1386	·1553	**19**	·1719	·1886	·2053	·2219	·2386	**19**	·2553	·2719	·2886	·3053	·3219
·0055	·0222	·0389	·0555	·0722	**20**	·0889	·1055	·1222	·1389	·1555	**20**	·1722	·1889	·2055	·2222	·2389	**20**	·2555	·2722	·2889	·3055	·3222
·0058	·0225	·0392	·0558	·0725	**21**	·0892	·1058	·1225	·1392	·1558	**21**	·1725	·1892	·2058	·2225	·2392	**21**	·2558	·2725	·2892	·3058	·3225
·0061	·0228	·0394	·0561	·0728	**22**	·0894	·1061	·1228	·1394	·1561	**22**	·1728	·1894	·2061	·2228	·2394	**22**	·2561	·2728	·2894	·3061	·3228
·0064	·0230	·0397	·0564	·0730	**23**	·0897	·1064	·1230	·1397	·1564	**23**	·1730	·1897	·2064	·2230	·2397	**23**	·2564	·2730	·2897	·3064	·3230
·0067	·0233	·0400	·0567	·0733	**24**	·0900	·1067	·1233	·1400	·1567	**24**	·1733	·1900	·2067	·2233	·2400	**24**	·2567	·2733	·2900	·3067	·3233
·0069	·0236	·0403	·0569	·0736	**25**	·0903	·1069	·1236	·1403	·1569	**25**	·1736	·1903	·2069	·2236	·2403	**25**	·2569	·2736	·2903	·3069	·3236
·0072	·0239	·0405	·0572	·0739	**26**	·0905	·1072	·1239	·1405	·1572	**26**	·1739	·1905	·2072	·2239	·2405	**26**	·2572	·2739	·2905	·3072	·3239
·0075	·0242	·0408	·0575	·0742	**27**	·0908	·1075	·1242	·1408	·1575	**27**	·1742	·1908	·2075	·2242	·2408	**27**	·2575	·2742	·2908	·3075	·3242
·0078	·0244	·0411	·0578	·0744	**28**	·0911	·1078	·1244	·1411	·1578	**28**	·1744	·1911	·2078	·2244	·2411	**28**	·2578	·2744	·2911	·3078	·3244
·0080	·0247	·0414	·0580	·0747	**29**	·0914	·1080	·1247	·1414	·1580	**29**	·1747	·1914	·2080	·2247	·2414	**29**	·2580	·2747	·2914	·3080	·3247
·0083	·0250	·0417	·0583	·0750	**30**	·0917	·1083	·1250	·1417	·1583	**30**	·1750	·1917	·2083	·2250	·2417	**30**	·2583	·2750	·2917	·3083	·3250
·0086	·0253	·0419	·0586	·0753	**31**	·0919	·1086	·1253	·1419	·1586	**31**	·1753	·1919	·2086	·2253	·2419	**31**	·2586	·2753	·2919	·3086	·3253
·0089	·0255	·0422	·0589	·0755	**32**	·0922	·1089	·1255	·1422	·1589	**32**	·1755	·1922	·2089	·2255	·2422	**32**	·2589	·2755	·2922	·3089	·3255
·0092	·0258	·0425	·0592	·0758	**33**	·0925	·1092	·1258	·1425	·1592	**33**	·1758	·1925	·2092	·2258	·2425	**33**	·2592	·2758	·2925	·3092	·3258
·0094	·0261	·0428	·0594	·0761	**34**	·0928	·1094	·1261	·1428	·1594	**34**	·1761	·1928	·2094	·2261	·2428	**34**	·2594	·2761	·2928	·3094	·3261
·0097	·0264	·0430	·0597	·0764	**35**	·0930	·1097	·1264	·1430	·1597	**35**	·1764	·1930	·2097	·2264	·2430	**35**	·2597	·2764	·2930	·3097	·3264
·0100	·0267	·0433	·0600	·0767	**36**	·0933	·1100	·1267	·1433	·1600	**36**	·1767	·1933	·2100	·2267	·2433	**36**	·2600	·2767	·2933	·3100	·3267
·0103	·0269	·0436	·0603	·0769	**37**	·0936	·1103	·1269	·1436	·1603	**37**	·1769	·1936	·2103	·2269	·2436	**37**	·2603	·2769	·2936	·3103	·3269
·0105	·0272	·0439	·0605	·0772	**38**	·0939	·1105	·1272	·1439	·1605	**38**	·1772	·1939	·2105	·2272	·2439	**38**	·2605	·2772	·2939	·3105	·3272
·0108	·0275	·0442	·0608	·0775	**39**	·0942	·1108	·1275	·1442	·1608	**39**	·1775	·1942	·2108	·2275	·2442	**39**	·2603	·2775	·2942	·3108	·3275
·0111	·0278	·0444	·0611	·0778	**40**	·0944	·1111	·1278	·1444	·1611	**40**	·1778	·1944	·2111	·2278	·2444	**40**	·2611	·2778	·2944	·3111	·3278
·0114	·0280	·0447	·0614	·0780	**41**	·0947	·1114	·1280	·1447	·1614	**41**	·1780	·1947	·2114	·2280	·2447	**41**	·2614	·2780	·2947	·3114	·3280
·0117	·0283	·0450	·0617	·0783	**42**	·0950	·1117	·1283	·1450	·1617	**42**	·1783	·1950	·2117	·2283	·2450	**42**	·2617	·2783	·2950	·3117	·3283
·0119	·0286	·0453	·0619	·0786	**43**	·0953	·1119	·1286	·1453	·1619	**43**	·1786	·1953	·2119	·2286	·2453	**43**	·2619	·2786	·2953	·3119	·3286
·0122	·0289	·0455	·0622	·0789	**44**	·0955	·1122	·1289	·1455	·1622	**44**	·1789	·1955	·2122	·2289	·2455	**44**	·2622	·2789	·2955	·3122	·3289
·0125	·0292	·0458	·0625	·0792	**45**	·0958	·1125	·1292	·1458	·1625	**45**	·1792	·1958	·2125	·2292	·2458	**45**	·2625	·2792	·2958	·3125	·3292
·0128	·0294	·0461	·0628	·0794	**46**	·0961	·1128	·1294	·1461	·1328	**46**	·1794	·1961	·2128	·2294	·2461	**46**	·2628	·2794	·2961	·3128	·3294
·0130	·0297	·0464	·0630	·0797	**47**	·0964	·1130	·1297	·1464	·1630	**47**	·1797	·1964	·2130	·2297	·2464	**47**	·2630	·2797	·2964	·3130	·3297
·0133	·0300	·0467	·0633	·0800	**48**	·0967	·1133	·1300	·1467	·1633	**48**	·1800	·1967	·2133	·2300	·2467	**48**	·2633	·2800	·2967	·3133	·3300
·0136	·0303	·0469	·0636	·0803	**49**	·0969	·1136	·1303	·1470	·1636	**49**	·1803	·1969	·2136	·2303	·2469	**49**	·2636	·2803	·2969	·3136	·3303
·0139	·0305	·0472	·0639	·0805	**50**	·0972	·1139	·1305	·1472	·1639	**50**	·1805	·1972	·2139	·2305	·2472	**50**	·2639	·2805	·2972	·3139	·3305
·0142	·0308	·0475	·0642	·0808	**51**	·0975	·1142	·1308	·1475	·1642	**51**	·1808	·1975	·2142	·2308	·2475	**51**	·2642	·2808	·2975	·3142	·3308
·0144	·0311	·0478	·0644	·0811	**52**	·0978	·1144	·1311	·1478	·1644	**52**	·1811	·1978	·2144	·2311	·2478	**52**	·2644	·2811	·2978	·3144	·3311
·0147	·0314	·0480	·0647	·0814	**53**	·0980	·1147	·1314	·1480	·1647	**53**	·1814	·1980	·2147	·2314	·2480	**53**	·2647	·2814	·2980	·3147	·3314
·0150	·0317	·0483	·0650	·0817	**54**	·0983	·1150	·1317	·1483	·1650	**54**	·1817	·1983	·2150	·2317	·2483	**54**	·2650	·2817	·2983	·3150	·3317
·0153	·0319	·0486	·0653	·0819	**55**	·0986	·1153	·1319	·1486	·1653	**55**	·1819	·1986	·2153	·2319	·2486	**55**	·2653	·2819	·2986	·3153	·3319
·0155	·0322	·0489	·0655	·0822	**56**	·0989	·1155	·1322	·1489	·1655	**56**	·1822	·1989	·2155	·2322	·2489	**56**	·2655	·2822	·2989	·3155	·3322
·0158	·0325	·0492	·0658	·0825	**57**	·0992	·1158	·1325	·1492	·1658	**57**	·1825	·1992	·2158	·2325	·2492	**57**	·2658	·2825	·2992	·3158	·3325
·0161	·0328	·0494	·0661	·0828	**58**	·0994	·1161	·1328	·1494	·1661	**58**	·1828	·1994	·2161	·2328	·2494	**58**	·2661	·2828	·2 94	·3161	·3328
·0164	·0330	·0497	·0664	·0830	**59**	·0997	·1164	·1330	·1497	·1664	**59**	·1830	·1997	·2164	·2330	·2497	**59**	·2664	·2830	·2997	·3164	·3330

TABLE VI—*cont.*

Ghaṭikās and Palas (Naligais and Vinadis) as Fractions of a day—*cont.*

N.B.—The same table will serve for minutes and seconds as fractions of an **Hour** or a **Degree.**

Ghaṭikās.					Palas.	Ghaṭikās.					Palas.	Ghaṭikās.					Palas.	Ghaṭikās.				
20	**21**	**22**	**23**	**24**		**25**	**26**	**27**	**28**	**29**		**30**	**31**	**32**	**33**	**34**		**35**	**36**	**37**	**38**	**39**
·3333	·3500	·3667	·3833	·4000	**0**	·4167	·4333	·4500	·4667	·4833	**0**	·5000	·5167	·5333	·5500	·5667	**0**	·5833	·6000	·6167	·6333	·6500
·3336	·3503	·3669	·3836	·4003	**1**	·4169	·4336	·4503	·4669	·4836	**1**	·5003	·5169	·5336	·5503	·5669	**1**	·5836	·6003	·6169	·6336	·6503
·3339	·3505	·3672	·3839	·4005	**2**	·4172	·4339	·4505	·4672	·4839	**2**	·5005	·5172	·5339	·5505	·5672	**2**	·5839	·6005	·6172	·6339	·6505
·3342	·3508	·3675	·3842	·4008	**3**	·4175	·4342	·4508	·4675	·4842	**3**	·5008	·5175	·5342	·5508	·5675	**3**	·5842	·6008	·6175	·6342	·6508
·3344	·3511	·3678	·3844	·4011	**4**	·4178	·4344	·4511	·4678	·4844	**4**	·5011	·5178	·5344	·5511	·5678	**4**	·5844	·6011	·6178	·6344	·6511
·3347	·3514	·3680	·3847	·4014	**5**	·4180	·4347	·4514	·4680	·4847	**5**	·5014	·5180	·5347	·5514	·5680	**5**	·5847	·6014	·6180	·6347	·6514
·3350	·3517	·3683	·3850	·4017	**6**	·4183	·4350	·4517	·4683	·4850	**6**	·5017	·5183	·5350	·5517	·5683	**6**	·5850	·6017	·6183	·6350	·6517
·3353	·3519	·3686	·3853	·4019	**7**	·4186	·4353	·4519	·4686	·4853	**7**	·5019	·5186	·5353	·5519	·5686	**7**	·5853	·6019	·6186	·6353	·6519
·3355	·3522	·3689	·3855	·4022	**8**	·4189	·4355	·4522	·4689	·4855	**8**	·5022	·5189	·5355	·5522	·5689	**8**	·5855	·6022	·6189	·6355	·6522
·3358	·3525	·3692	·3858	·4025	**9**	·4192	·4358	·4525	·4692	·4858	**9**	·5025	·5192	·5358	·5525	·5692	**9**	·5858	·6025	·6192	·6358	·6525
·3361	·3528	·3694	·3861	·4028	**10**	·4194	·4361	·4528	·4694	·4861	**10**	·5028	·5194	·5361	·5528	·5694	**10**	·5861	·6028	·6194	·6361	·6528
·3364	·3530	·3697	·3864	·4030	**11**	·4197	·4364	·4530	·4697	·4864	**11**	·5030	·5197	·5364	·5530	·5697	**11**	·5864	·6030	·6197	·6364	·6530
·3367	·3533	·3700	·3867	·4033	**12**	·4200	·4367	·4533	·4700	·4867	**12**	·5033	·5200	·5367	·5533	·5700	**12**	·5867	·6033	·6200	·6367	·6533
·3369	·3536	·3703	·3869	·4036	**13**	·4203	·4369	·4536	·4703	·4869	**13**	·5036	·5203	·5369	·5536	·5703	**13**	·5869	·6036	·6203	·6369	·6536
·3372	·3539	·3706	·3872	·4039	**14**	·4205	·4372	·4539	·4705	·4872	**14**	·5039	·5205	·5372	·5539	·5705	**14**	·5872	·6039	·6205	·6372	·6539
·3375	·3542	·3708	·3875	·4042	**15**	·4208	·4375	·4542	·4708	·4875	**15**	·5042	·5208	·5375	·5542	·5708	**15**	·5875	·6042	·6208	·6375	·6542
·3378	·3544	·3711	·3878	·4044	**16**	·4211	·4378	·4544	·4711	·4878	**16**	·5044	·5211	·5378	·5544	·5711	**16**	·5878	·6044	·6211	·6378	·6544
·3380	·3547	·3714	·3880	·4047	**17**	·4214	·4380	·4547	·4714	·4880	**17**	·5047	·5214	·5380	·5547	·5714	**17**	·5880	·6047	·6214	·6380	·6547
·3383	·3550	·3717	·3883	·4050	**18**	·4217	·4383	·4550	·4717	·4883	**18**	·5050	·5217	·5383	·5550	·5717	**18**	·5883	·6050	·6217	·6383	·6550
·3386	·3553	·3719	·3886	·4053	**19**	·4219	·4386	·4553	·4719	·4886	**19**	·5053	·5219	·5386	·5553	·5719	**19**	·5886	·6053	·6219	·6386	·6553
·3389	·3555	·3722	·3889	·4055	**20**	·4222	·4389	·4555	·4722	·4889	**20**	·5055	·5222	·5389	·5555	·5722	**20**	·5889	·6055	·6222	·6389	·6555
·3392	·3558	·3725	·3892	·4058	**21**	·4225	·4392	·4558	·4725	·4892	**21**	·5058	·5225	·5392	·5558	·5725	**21**	·5892	·6058	·6225	·6392	·6558
·3394	·3561	·3728	·3894	·4061	**22**	·4228	·4394	·4561	·4728	·4894	**22**	·5061	·5228	·5394	·5561	·5728	**22**	·5894	·6061	·6228	·6394	·6561
·3397	·3564	·3730	·3897	·4064	**23**	·4230	·4397	·4564	·4730	·4897	**23**	·5064	·5230	·5397	·5564	·5730	**23**	·5897	·6064	·6230	·6397	·6564
·3400	·3567	·3733	·3900	·4067	**24**	·4233	·4400	·4567	·4733	·4900	**24**	·5067	·5233	·5400	·5567	·5733	**24**	·5900	·6067	·6233	·6400	·6567
·3403	·3569	·3736	·3903	·4069	**25**	·4236	·4403	·4569	·4736	·4903	**25**	·5069	·5236	·5403	·5569	·5736	**25**	·5903	·6069	·6236	·6403	·6569
·3405	·3572	·3739	·3905	·4072	**26**	·4239	·4405	·4572	·4739	·4905	**26**	·5072	·5239	·5405	·5572	·5739	**26**	·5905	·6072	·6239	·6405	·6572
·3408	·3575	·3742	·3908	·4075	**27**	·4242	·4408	·4575	·4742	·4908	**27**	·5075	·5242	·5408	·5575	·5742	**27**	·5908	·6075	·6242	·6408	·6575
·3411	·3578	·3744	·3911	·4078	**28**	·4244	·4411	·4578	·4744	·4911	**28**	·5078	·5244	·5411	·5578	·5744	**28**	·5911	·6078	·6244	·6411	·6578
·3414	·3580	·3747	·3914	·4080	**29**	·4247	·4414	·4580	·4747	·4914	**29**	·5080	·5247	·5414	·5580	·5747	**29**	·5914	·6080	·6247	·6414	·6580
·3417	·3583	·3750	·3917	·4083	**30**	·4250	·4417	·4583	·4750	·4917	**30**	·5083	·5250	·5417	·5583	·5750	**30**	·5917	·6083	·6250	·6417	·6583
·3419	·3586	·3753	·3919	·4086	**31**	·4253	·4419	·4586	·4753	·4919	**31**	·5086	·5253	·5419	·5586	·5753	**31**	·5919	·6086	·6253	·6419	·6586
·3422	·3589	·3755	·3922	·4089	**32**	·4256	·4422	·4589	·4755	·4922	**32**	·5089	·5256	·5422	·5589	·5756	**32**	·5922	·6089	·6256	·6422	·6589
·3425	·3592	·3758	·3925	·4092	**33**	·4258	·4425	·4592	·4758	·4925	**33**	·5092	·5258	·5425	·5592	·5758	**33**	·5925	·6092	·6258	·6425	·6592
·3428	·3594	·3761	·3928	·4094	**34**	·4261	·4428	·4594	·4761	·4928	**34**	·5094	·5261	·5428	·5594	·5761	**34**	·5928	·6094	·6261	·6428	·6594
·3430	·3597	·3764	·3930	·4097	**35**	·4264	·4431	·4597	·4764	·4930	**35**	·5097	·5264	·5431	·5597	·5764	**35**	·5930	·6097	·6264	·6431	·6597
·3433	·3600	·3767	·3933	·4100	**36**	·4267	·4433	·4600	·4767	·4933	**36**	·5100	·5267	·5433	·5600	·5767	**36**	·5933	·6100	·6267	·6433	·6600
·3436	·3603	·3769	·3936	·4103	**37**	·4269	·4436	·4603	·4769	·4936	**37**	·5103	·5269	·5436	·5603	·5769	**37**	·5936	·6103	·6269	·6436	·6603
·3439	·3605	·3772	·3939	·4105	**38**	·4272	·4439	·4605	·4772	·4939	**38**	·5105	·5272	·5439	·5605	·5772	**38**	·5939	·6105	·6272	·6439	·6605
·3442	·3608	·3775	·3942	·4108	**39**	·4275	·4442	·4608	·4775	·4942	**39**	·5108	·5275	·5442	·5608	·5775	**39**	·5942	·6108	·6275	·6442	·6608
·3444	·3611	·3778	·3944	·4111	**40**	·4278	·4444	·4611	·4778	·4944	**40**	·5111	·5278	·5444	·5611	·5778	**40**	·5944	·6111	·6278	·6444	·6611
·3447	·3614	·3780	·3947	·4114	**41**	·4280	·4447	·4614	·4780	·4947	**41**	·5114	·5280	·5447	·5614	·5780	**41**	·5947	·6114	·6280	·6447	·6614
·3450	·3617	·3783	·3950	·4117	**42**	·4283	·4450	·4617	·4783	·4950	**42**	·5117	·5283	·5450	·5617	·5783	**42**	·5950	·6117	·6283	·6450	·6617
·3453	·3619	·3786	·3953	·4119	**43**	·4286	·4453	·4619	·4786	·4953	**43**	·5119	·5286	·5453	·5619	·5786	**43**	·5953	·6119	·6286	·6453	·6620
·3455	·3622	·3789	·3955	·4122	**44**	·4289	·4455	·4622	·4789	·4955	**44**	·5122	·5289	·5455	·5622	·5789	**44**	·5955	·6122	·6289	·6455	·6622
·3458	·3625	·3792	·3958	·4125	**45**	·4292	·4458	·4625	·4792	·4958	**45**	·5125	·5292	·5458	·5625	·5792	**45**	·5958	·6125	·6292	·6458	·6625
·3461	·3628	·3794	·3961	·4128	**46**	·4294	·4461	·4628	·4794	·4961	**46**	·5128	·5294	·5461	·5628	·5794	**46**	·5961	·6128	·6294	·6461	·6628
·3464	·3630	·3797	·3964	·4130	**47**	·4297	·4464	·4630	·4797	·4964	**47**	·5130	·5297	·5464	·5630	·5797	**47**	·5964	·6130	·6297	·6464	·6630
·3467	·3633	·3800	·3967	·4133	**48**	·4300	·4467	·4633	·4800	·4967	**48**	·5133	·5300	·5467	·5633	·5800	**48**	·5967	·6133	·6300	·6467	·6633
·3469	·3636	·3803	·3969	·4136	**49**	·4303	·4469	·4636	·4803	·4969	**49**	·5136	·5303	·5469	·5636	·5803	**49**	·5969	·6136	·6303	·6469	·6636
·3472	·3639	·3805	·3972	·4139	**50**	·4305	·4472	·4639	·4805	·4972	**50**	·5139	·5305	·5472	·5639	·5805	**50**	·5972	·6139	·6305	·6472	·6639
·3475	·3642	·3808	·3975	·4142	**51**	·4308	·4475	·4642	·4808	·4975	**51**	·5142	·5308	·5475	·5642	·5808	**51**	·5975	·6142	·6308	·6475	·6642
·3478	·3644	·3811	·3978	·4144	**52**	·4311	·4478	·4644	·4811	·4978	**52**	·5144	·5311	·5478	·5644	·5811	**52**	·5978	·6144	·6311	·6478	·6644
·3480	·3647	·3814	·3980	·4147	**53**	·4314	·4480	·4647	·4814	·4980	**53**	·5147	·5314	·5480	·5647	·5814	**53**	·5980	·6147	·6314	·6480	·6647
·3483	·3650	·3817	·3983	·4150	**54**	·4317	·4483	·4650	·4817	·4983	**54**	·5150	·5317	·5483	·5650	·5817	**54**	·5983	·6150	·6317	·6483	·6650
·3486	·3653	·3819	·3986	·4153	**55**	·4319	·4486	·4653	·4819	·4986	**55**	·5153	·5319	·5486	·5653	·5819	**55**	·5986	·6153	·6319	·6486	·6653
·3489	·3655	·3822	·3989	·4155	**56**	·4322	·4489	·4655	·4822	·4989	**56**	·5155	·5322	·5489	·5655	·5822	**56**	·5989	·6155	·6322	·6489	·6655
·3492	·3658	·3825	·3992	·4158	**57**	·4325	·4492	·4658	·4825	·4992	**57**	·5158	·5325	·5492	·5658	·5825	**57**	·5992	·6158	·6325	·6492	·6658
·3494	·3661	·3828	·3994	·4161	**58**	·4328	·4494	·4661	·4828	·4994	**58**	·5161	·5328	·5494	·5661	·5828	**58**	·5994	·6161	·6328	·6494	·6661
·3497	·3664	·3830	·3997	·4164	**59**	·4330	·4497	·4664	·4830	·4997	**59**	·5164	·5330	·5497	·5664	·5830	**59**	·5997	·6164	·6330	·6497	·6664

TABLE VI—*cont.*

Ghaṭikās and Palas (Naligais and Vinadis) as Fractions of a day—*cont.*

N.B.—The same table will serve for minutes and seconds as fractions of an **Hour** or a **Degree.**

Ghatikās.					Palas.	Ghaṭikās.					Palas.	Ghaṭikās.					Palas.	Ghaṭikās.				
40	**41**	**42**	**43**	**44**		**45**	**46**	**47**	**48**	**49**		**50**	**51**	**52**	**53**	**54**		**55**	**56**	**57**	**58**	**59**
·6667	·6833	·7000	·7167	·7333	**0**	·7500	·7667	·7833	·8000	·8167	**0**	·8333	·8500	·8667	·8833	·9000	**0**	·9167	·9333	·9500	·9667	·9833
·6669	·6836	·7003	·7169	·7336	**1**	·7503	·7669	·7836	·8003	·8169	**1**	·8336	·8503	·8669	·8836	·9003	**1**	·9169	·9336	·9503	·9669	·9836
·6672	·6839	·7006	·7172	·7339	**2**	·7505	·7672	·7839	·8005	·8172	**2**	·8339	·8505	·8672	·8839	·9005	**2**	·9172	·9339	·9505	·9672	·9839
·6675	·6842	·7008	·7175	·7342	**3**	·7508	·7675	·7842	·8008	·8175	**3**	·8342	·8508	·8675	·8842	·9008	**3**	·9175	·9342	·9508	·9675	·9842
·6678	·6844	·7011	·7178	·7344	**4**	·7511	·7678	·7844	·8011	·8178	**4**	·8344	·8511	·8678	·8844	·9011	**4**	·9178	·9344	·9511	·9678	·9844
·6680	·6847	·7014	·7180	·7347	**5**	·7514	·7680	·7847	·8014	·8180	**5**	·8347	·8514	·8680	·8847	·9014	**5**	·9180	·9347	·9514	·9680	·9847
·6683	·6850	·7017	·7183	·7350	**6**	·7517	·7683	·7850	·8017	·8183	**6**	·8350	·8517	·8683	·8850	·9017	**6**	·9183	·9350	·9517	·9683	·9850
·6686	·6853	·7019	·7186	·7353	**7**	·7519	·7686	·7853	·8019	·8186	**7**	·8353	·8519	·8686	·8853	·9019	**7**	·9186	·9353	·9519	·9686	·9853
·6689	·6855	·7022	·7189	·7355	**8**	·7522	·7689	·7855	·8022	·8189	**8**	·8355	·8522	·8689	·8855	·9022	**8**	·9189	·9355	·9522	·9689	·9855
·6692	·6858	·7025	·7192	·7358	**9**	·7525	·7692	·7858	·8025	·8192	**9**	·8358	·8525	·8692	·8858	·9025	**9**	·9192	·9358	·9525	·9692	·9858
·6694	·6861	·7028	·7194	·7361	**10**	·7528	·7694	·7861	·8028	·8194	**10**	·8361	·8528	·8694	·8861	·9028	**10**	·9194	·9361	·9528	·9694	·9861
·6697	·6864	·7030	·7197	·7364	**11**	·7530	·7697	·7864	·8030	·8197	**11**	·8364	·8530	·8697	·8864	·9030	**11**	·9197	·9364	·9530	·9697	·9864
·6700	·6867	·7033	·7200	·7367	**12**	·7533	·7700	·7867	·8033	·8200	**12**	·8367	·8533	·8700	·8867	·9033	**12**	·9200	·9367	·9533	·9700	·9867
·6703	·6869	·7036	·7203	·7369	**13**	·7536	·7703	·7869	·8036	·8203	**13**	·8369	·8536	·8703	·8869	·9036	**13**	·9203	·9369	·9536	·9703	·9869
·6706	·6872	·7039	·7205	·7372	**14**	·7539	·7705	·7872	·8039	·8205	**14**	·8372	·8539	·8705	·8872	·9039	**14**	·9205	·9372	·9539	·9705	·9872
·6708	·6875	·7041	·7208	·7375	**15**	·7542	·7708	·7875	·8042	·8208	**15**	·8375	·8542	·8708	·8875	·9042	**15**	·9208	·9375	·9542	·9708	·9875
·6711	·6878	·7044	·7211	·7378	**16**	·7544	·7711	·7878	·8044	·8211	**16**	·8378	·8544	·8711	·8878	·9044	**16**	·9211	·9378	·9544	·9711	·9878
·6714	·6880	·7047	·7214	·7380	**17**	·7547	·7714	·7880	·8047	·8214	**17**	·8380	·8547	·8714	·8880	·9047	**17**	·9214	·9380	·9547	·9714	·9880
·6717	·6883	·7050	·7217	·7383	**18**	·7550	·7717	·7883	·8050	·8217	**18**	·8383	·8550	·8717	·8883	·9050	**18**	·9217	·9383	·9550	·9717	·9883
·6719	·6886	·7053	·7219	·7386	**19**	·7553	·7719	·7886	·8053	·8219	**19**	·8386	·8553	·8719	·8886	·9053	**19**	·9219	·9386	·9553	·9719	·9886
·6722	·6889	·7055	·7222	·7389	**20**	·7555	·7722	·7889	·8055	·8222	**20**	·8389	·8555	·8722	·8889	·9055	**20**	·9222	·9389	·9555	·9722	·9889
·6725	·6892	·7058	·7225	·7392	**21**	·7558	·7725	·7892	·8058	·8225	**21**	·8392	·8558	·8725	·8892	·9058	**21**	·9225	·9392	·9558	·9725	·9892
·6728	·6894	·7061	·7228	·7394	**22**	·7561	·7728	·7894	·8061	·8228	**22**	·8394	·8561	·8728	·8894	·9061	**22**	·9228	·9394	·9561	·9728	·9894
·6731	·6897	·7064	·7230	·7397	**23**	·7564	·7730	·7897	·8064	·8230	**23**	·8397	·8564	·8730	·8897	·9064	**23**	·9230	·9397	·9564	·9730	·9897
·6733	·6900	·7067	·7233	·7400	**24**	·7567	·7733	·7900	·8067	·8233	**24**	·8400	·8567	·8733	·8900	·9067	**24**	·9233	·9400	·9567	·9733	·9900
·6736	·6903	·7069	·7236	·7403	**25**	·7569	·7736	·7903	·8069	·8236	**25**	·8403	·8569	·8736	·8903	·9069	**25**	·9236	·9403	·9569	·9736	·9903
·6739	·6906	·7072	·7239	·7405	**26**	·7572	·7739	·7905	·8072	·8239	**26**	·8405	·8572	·8739	·8905	·9072	**26**	·9239	·9405	·9572	·9739	·9905
·6742	·6908	·7075	·7242	·7408	**27**	·7575	·7742	·7908	·8075	·8242	**27**	·8408	·8575	·8742	·8908	·9075	**27**	·9242	·9408	·9575	·9742	·9908
·6744	·6911	·7078	·7244	·7411	**28**	·7578	·7744	·7911	·8078	·8244	**28**	·8411	·8578	·8744	·8911	·9078	**28**	·9244	·9411	·9578	·9744	·9911
·6747	·6914	·7080	·7247	·7414	**29**	·7580	·7747	·7914	·8080	·8247	**29**	·8414	·8580	·8747	·8914	·9080	**29**	·9247	·9414	·9580	·9747	·9914
·6750	·6917	·7083	·7250	·7417	**30**	·7583	·7750	·7917	·8083	·8250	**30**	·8417	·8583	·8750	·8917	·9083	**30**	·9250	9417	·9583	·9750	·9917
·6753	·6919	·7086	·7253	·7419	**31**	·7586	·7753	·7919	·8086	·8253	**31**	·8419	·8586	·8753	·8919	·9086	**31**	·9253	·9419	·9586	·9753	·9919
·6755	·6922	·7089	·7255	·7422	**32**	·7589	7755	·7922	·8089	·8255	**32**	·8422	·8589	·8755	·8922	·9089	**32**	·9255	·9422	·9589	·9756	·9922
·6758	·6925	·7092	·7258	7425	**33**	·7592	·7758	·7925	·8092	·8258	**33**	·8425	·8592	·8758	·8925	·9092	**33**	·9258	9425	·9592	·9758	·9925
·6761	·6928	·7094	·7261	·7428	**34**	·7594	·7761	7928	·8094	·8261	**34**	·8428	·8594	·8761	·8928	·9094	**34**	·9261	9428	·9594	·9761	·9928
·6764	·6930	·7097	·7264	7430	**35**	·7597	·7764	·7930	·8097	·8264	**35**	·8430	·8597	·8764	·8930	·9097	**35**	·9264	·9430	·9597	·9764	·9930
·6767	·6933	·7100	·7267	·7433	**36**	·7600	·7767	·7933	·8100	·8267	**36**	·8438	·8600	·8767	·8933	·9100	**37**	·9269	·9433	·9603	·9769	·9936
·6769	·6936	·7103	·7269	·7436	**37**	·7603	·7769	·7936	8103	·8269	**37**	·8436	8603	8769	·8936	·9103	**38**	·9272	·9439	·9605	·9772	·9939
·6772	·6939	·7105	·7272	·7439	**38**	7605	7772	·7939	·8105	·8272	**38**	·8439	·8605	·8772	·8939	·9105	**39**	·9275	·9442	·9608	·9775	·9942
·6775	·6942	·7108	·7275	·7442	**39**	·7608	·7775	·7942	·8108	·8275	**39**	·8442	·8608	·8775	·8942	·9108						
·6778	·6944	·7111	·7278	·7444	**40**	·7611	·7778	·7944	·8111	·8278	**40**	·8444	·8611	·8778	·8944	·9111	**40**	·9278	·9444	·9611	·9778	·9944
·6780	·6947	·7114	·7280	·7447	**41**	·7614	·7780	·7947	8114	·8280	**41**	·8447	·8614	·8780	·8947	·9114	**41**	·9280	·9447	·9614	9780	·9947
·6783	·6950	·7117	7283	·7450	**42**	·7617	·7783	·7950	·8117	·8283	**42**	·8450	·8617	·8783	8950	9117	**42**	·9283	·9450	·9617	·9783	·9950
·6786	·6953	·7119	·7286	·7453	**43**	·7619	·7786	·7953	·8119	·8286	**43**	·8453	·8619	·8786	·8953	·9119	**43**	9286	·9453	·9619	·9786	·9953
·6789	·6955	·7122	·7289	·7455	**44**	·7622	·7789	·7955	·8122	·8289	**44**	·8455	·8622	·8789	·8955	·9122	**44**	·9289	·9455	·9622	·9789	·9955
·6792	·6958	·7125	·7292	·7458	**45**	·7625	·7792	·7958	·8125	·8292	**45**	·8458	·8625	·8792	·8958	·9125	**45**	·9292	·9458	·9625	·9792	·9958
·6794	·6961	·7128	·7294	·7461	**46**	·7628	·7794	·7961	·8128	·8294	**46**	·8161	·8628	·8794	·8961	·9128	**46**	·9294	·9461	·9628	·9794	·9961
·6797	·6964	·7130	·7297	·7464	**47**	·7630	·7797	·7964	·8130	·8297	**47**	·8464	·8630	·8797	·8964	·9130	**47**	·9297	·9164	·9630	·9797	·9964
·6800	·6967	7133	7300	·7467	**48**	·7633	·7800	·7967	·8133	·8300	**48**	·8467	·8633	·8800	·8967	·9133	**48**	·9300	·9467	·9633	·9800	·9967
·6803	·6969	·7136	·7303	·7469	**49**	·7636	·7803	·7969	·8136	·8303	**49**	·8469	·8636	·8803	·8969	·9136	**49**	·9303	·9469	·9636	·9803	·9969
·6805	·6972	·7139	·7305	·7472	**50**	7639	·7805	·7972	·8139	·9305	**50**	·8472	·8639	·8805	·8972	·9139	**50**	·9305	·9472	·9639	·9805	·9972
·6808	·6975	·7142	·7308	·7475	**51**	·7642	·7808	·7975	·8142	·8308	**51**	·8475	·8642	·8808	·8975	·9142	**51**	·9308	·9475	·9642	·9808	·9975
·6811	·6978	·7144	·7311	·7478	**52**	·7644	·7811	·79 8	·8144	·8311	**52**	·8478	·8644	·8811	·8978	·9144	**52**	·9311	·9478	·9644	·9811	·9978
·6814	·6980	·7147	7314	7480	**53**	·7647	·7814	·7980	·8147	·8314	**53**	·8480	·8647	·8814	·8980	·9147	**53**	·9314	·9480	·9647	·9814	·9980
·6817	·6983	·7150	·7317	·7483	**54**	·7650	·7817	·7983	·8150	·8317	**54**	·8483	·8650	·8817	·8983	·9150	**54**	·9317	·9483	·9650	·9817	·9983
·6819	·6986	·7153	·7319	·7486	**55**	·7653	·7819	·7986	·8153	·8319	**55**	·8486	·8653	·8819	·8986	·9153	**55**	·9319	·9486	·9653	·9819	·9986
·6822	·6989	·7155	·7322	·7489	**56**	·7655	·7822	·7989	·8155	·8322	**56**	·8489	·8655	·8822	·8989	·9155	**56**	·9322	·9489	·9655	·9822	·9989
·6825	·6992	·7158	·7325	·7492	**57**	·7658	·7825	·7992	·8158	·8325	**57**	·8492	·8658	·8825	·8992	·9158	**57**	·9325	·9492	·9658	9825	·9992
·6828	·6994	·7161	·7328	·7494	**58**	·7661	·7828	·7994	·8161	·8328	**58**	·8494	·8661	·8828	·8994	·9161	**58**	·9328	·9494	·9661	·9828	·9994
·6830	·6997	·7164	·7330	·7497	**59**	·7664	·7830	·7997	·8164	·8330	**59**	·8497	·8664	·8830	·8997	·9163	**59**	·9330	·9497	·9664	·9830	·9997

TABLE VI—*cont.*

Hours and Minutes as Fractions of a Day—*cont.*

Minutes.	Hours. 0	1	2	3	Minutes.	Hours. 4	5	6	7	Minutes.	Hours. 8	9	10	11	Minutes.	Seconds of hours as fractions of a day.
0	·000000	·0416666	·0833333	·1250000	0	·1666666	·2083333	·2500000	·2916666	0	·3333333	·3750000	·4166666	·4583333	0	·00000
1	·0006944	·0423611	·0840277	·1256944	1	·1673611	·2090277	·2506944	·2923611	1	3340277	·3756944	·4173611	·4590277	1	·00001
2	·0013888	·0430555	·0847222	·1263888	2	·1680555	·2097222	·2513888	·2930555	2	·3347222	·3763888	·4180555	·4597222	2	·00002
3	·0020833	·0437500	·0854166	·1270833	3	·1687500	·2104166	·2520833	·2937500	3	·3354166	·3770833	·4187500	·4604166	3	·00003
4	·0027777	·0444444	·0861111	·1277777	4	1694444	·2111111	·2527777	·2944444	4	·3361111	·3777777	·4194444	·4611111	4	·00005
5	·0034722	·0451388	0868055	·1284722	5	·1701388	·2118055	·2534722	·29513 8	5	·3368055	·3784722	·4201388	·4618055	5	·00006
6	·0041666	·0458333	·0875000	·1291666	6	·1708333	·2125000	·2541666	·2958333	6	·3375000	.3791666	·4208333	·4625000	6	00007
7	·0048611	·0465277	·0881944	·1298611	7	·1715277	·2131944	·2548611	·2965277	7	·3381944	·3798611	·4215277	·4631944	7	·00008
8	·0055555	·0472222	·0888888	·1305555	8	·1722222	·2138888	·2555555	·2972222	8	·3388888	·3805555	·4222222	·4638888	8	·00009
9	·0062500	·0479166	·0895833	·1312500	9	·1729166	·2145833	·2562500	·2979166	9	·3395833	·3812500	·4229166	·4645833	9	·00010
10	·0069444	·0486111	·0902777	·1319444	10	·1736111	·2152777	·2569444	·2986111	10	·3402777	·3819444	·4236111	.4652777	10	·00012
11	·0076388	·0493055	·0909722	·1326388	11	·1743055	·2159722	·2576388	·2993055	11	·3409722	·3826388	·4243055	·4659722	11	·00013
12	·0083333	·0500000	·0916666	·1333333	12	·1750000	2166666	·2583333	3000000	12	·3416666	·3833333	·4250000	·4666666	12	·00014
13	·0090277	·0506944	·0923611	·1340277	13	·1756944	·2173611	·2590277	·3006944	13	·3423611	·3840277	·4256944	·4673611	13	·00015
14	·0097222	·0513888	·0930555	·1347222	14	·1763888	·2180555	·2597222	·3013888	14	·3430555	·3847222	·4263888	·4680555	14	·00016
15	·0104166	·0520833	·0937500	·1354166	15	·1770833	·2187500	·2604166	·3020833	15	·3437500	·3854166	·4270833	·4687500	15	·00017
16	·0111111	·0527777	·0944444	·1361111	16	·1777777	·2194444	2611111	·3027777	16	·3444444	·3861111	·4277777	·4694444	16	·00018
17	0118055	·0534722	·0951388	·1368055	17	·1784722	·2201388	·2618055	3034722	17	·3451388	·3868055	·4284722	·4701388	17	·00020
18	0125000	·0541666	·0958333	·1375000	18	·1791666	·2208333	·2625000	·3041666	18	·3458333	·3875000	·4291666	·4708333	18	·00021
19	·0131944	·0548611	·0965277	·1381944	19	·1798611	·2215277	·2631944	·3048611	19	·3465277	·3881944	·4298611	·4715277	19	·00022
20	·0138888	·0555555	·0972222	·1388888	20	·1805555	·2222222	·2638888	·3055555	20	·3472222	·3888888	·4305555	·4722222	20	·00023
21	·0145833	0562500	·0979166	·1395833	21	·1812500	2229166	·2645833	·3062500	21	3479166	·3895833	·4312500	·4729166	21	·00024
22	0152777	·0569444	0986111	·1402777	22	·1819444	·2236111	·2652777	·3069444	22	·3486111	·3902777	·4319444	·4736111	22	·00025
23	·0159722	·0576388	·0993055	·1409722	23	·1826388	·2243055	·2659722	·3076388	23	·3493055	·3909722	·4326388	·4743055	23	·00027
24	·0166666	·0583333	·1000000	·1416666	24	·1833333	·2350000	·2666666	·3083333	24	·3500000	·3916666	·4333333	·4750000	24	·00028
25	·0173611	·0590277	·1006944	·1423611	25	·1840277	·2256944	·2673611	·3090277	25	·3506944	·3923611	·4340277	·4756944	25	·00029
26	·0180555	·0597222	·1013888	·1430555	26	·1847222	·2263888	·2680555	·3097222	26	·3513888	·3930555	·4347222	·4763888	26	·00030
27	·0187500	0604166	·1020833	·1437500	27	·1854166	·2270833	·2687500	·3104166	27	·3520833	3937500	·4354166	·4770833	27	·00031
28	·0194444	·0611111	·1027777	·1444444	28	1861111	·2277777	·2694444	·3111111	28	·3527777	·3944444	·4361111	·4777777	28	·00032
29	·0201388	·0618055	1034722	·1451388	29	·1868055	·2284722	·2701388	·3118055	29	·3534722	3951388	·4368055	·4784722	29	·00034
30	·0208333	·0625000	·1041666	·1458333	30	·1875000	2291666	·2708333	·3125000	30	·3541666	·3958333	·4375000	·4791666	30	·00035
31	·0215277	·0631944	·1048611	·1465277	31	·1881944	·22 8611	·2715277	·3131944	31	·3548611	·3965277	·4381944	·4798611	31	·00036
32	·0222222	·0638888	·1055555	·1472222	32	·1888888	2305555	·2722222	3138888	32	·3555555	·3972222	·4388888	·4805555	32	·00037
33	·0229166	·0645833	·1062500	·1479166	33	·1895833	·2312500	·2729166	·3145833	33	·3562500	·3979166	·4395833	·4812500	33	·00038
34	·0236111	·0652777	·1069444	·1486111	34	·1902777	·2319444	·2736111	·3152777	34	·3569444	·3986111	·4402777	·4819444	34	·00039
35	·0243055	·0659722	·1076388	·1493055	35	·1909722	·2326388	·2743055	·3159722	35	·3576388	·3993055	·4409722	·4826388	35	·00040
36	·0250000	·0666666	·1083333	·1500000	36	·1916666	·2333333	·2750000	·3166666	36	·3583333	·4000000	·4416666	·4833333	36	00042
37	·0256944	·0673611	·1090277	·1506944	37	·19236 1	·2340277	·2756944	·3173611	37	·3590277	4006944	·4423611	·4840277	37	·00043
38	·0263888	·0680555	·1097222	·1513888	38	·1930555	·2347222	·2763888	·3180555	38	·3597222	·4013888	·4430555	·4847222	38	·00044
39	·0270833	·0687500	·1104166	·1520833	39	·1937500	2354166	2770833	3187500	39	·3604166	·4020833	·4437500	·4854166	39	·00045
40	0277777	·0694444	·1111111	·1527777	40	·1944444	·2361111	·2777777	·3194444	40	3611111	·4027777	·4444444	·4861111	40	·00046
41	·0284722	·0701388	·1118055	·1534722	41	·1951388	2368055	·2784722	·3201828	41	·3618055	·4034722	·4451388	·4868055	41	·00047
42	·0291666	·0708333	·1125000	·154 666	42	·1958333	·237500	·2791666	·3208333	42	·3625000	·4041666	·4458333	·4875000	42	·00049
43	·0298611	·0715277	·1131944	·1548611	43	·1965277	·2381944	·2798611	·3215277	43	·3631944	·4048611	·4465277	·4881944	43	·00050
44	·0305555	·0722222	·1138888	·1555555	44	·1972222	·2388888	·2805555	·3222222	44	·3638888	·4055555	·4472222	·4888888	44	·00051
45	·0312500	·0729166	·1145833	·1562500	45	·1979166	·2395833	·2812500	·3229166	45	·3645833	·4062500	·4479166	·4895833	45	·00052
46	·0319444	0736111	·1152777	·1569444	46	·1986111	·2402777	·2819444	·3236111	46	·3652777	·4069444	·4486111	·4902777	46	·00053
47	·0326388	·0743055	·1159722	·1576388	47	·1993055	·2409723	·2826388	·3243056	47	·3659722	·4076388	·4493055	·4909722	47	·00054
48	·0333333	·0750000	·1166666	·1583333	48	·2000000	·2416666	·2833333	·3250000	48	·3666666	·4083333	·4500000	·4916666	48	·00055
49	·0340277	·0756944	·1173611	·1590277	49	·2006944	·2423611	·2840277	3256944	49	·3673611	·4090277	·4506944	·4923611	49	·00057
50	·0347222	·0763888	·1180555	·1597222	50	·2013888	·2430555	·2847222	·3263888	50	·3680555	·4097222	4513888	·4930555	50	·00058
51	·0354166	·0770833	·1187500	·1604166	51	·2020833	·2437500	·2854166	·3270833	51	·3687500	·4104166	·4520833	·4937500	51	·00059
52	·0361111	·0777777	·1194444	·1611111	52	·2027777	·2444444	·2861111	·3277777	52	·3694444	·4111111	·4527777	·4944444	52	·00060
53	·0368055	·0784722	·1201388	·1618055	53	·2034722	·2451388	·2868055	·3284722	53	·3701388	·4118055	·4534722	·4951388	53	·00061
54	·0375000	·0791666	·1208333	·1625000	54	·2041666	·2458333	·2875000	·3291666	54	·3708333	·4125000	·4541666	·4958333	54	·00062
55	·0381944	0798611	·1215277	·1631944	55	·2048611	·2465277	·2881944	·3298611	55	·3715277	·4131994	·4548611	·4965277	55	·00064
56	·0388888	·0805555	·1222222	·1638888	56	2055555	·2472222	·2888888	·3305555	56	·3722222	·4138888	·4555555	·4972222	56	00065
57	·0395833	·0812500	·1229166	·1645833	57	·2062500	·2479166	·2895833	3312500	57	·3729166	·4145833	·4562500	·4979166	57	·00066
58	·0402777	·0819444	·1236111	·1652777	58	·2069444	·2486111	·2902777	·3319444	58	·3736111	·4152777	·4569444	·4986111	58	·00067
59	·0409722	·0826388	·1243055	·1659722	59	·2076388	·2493055	·2909722	·3326388	59	·3743055	·4159722	·4576388	·4993055	59	·00068

TABLE VI—*cont.*

Hours and Minutes as Fractions of a Day—*cont.*

Minutes.	Hours. 12	13	14	15	Minutes.	Hours. 16	17	18	19	Minutes.	Hours. 20	21	22	23	Minutes.	Seconds of hours as fractions of a day.
0	·5000000	·5416666	·5833333	·6250000	0	·6666666	·7083333	·7500000	·7916666	0	·8333333	·8750000	·9166666	·9583333	0	·00000
1	·5006944	·5423611	·5840277	·6256944	1	·6673611	·709 277	7506944	·7923611	1	·8340277	·8756944	·9173611	·9590277	1	·00001
2	·5013888	·5430555	·5847222	·6263888	2	·6680555	·7097222	·7513888	7930555	2	·8347222	·8763888	·9180555	·9597222	2	·00002
3	·5020833	·5437500	·5854166	·6270833	3	·6687500	·7104166	·752 833	·7937500	3	·8354166	·8770833	·9187500	·9604166	3	·00003
4	·5027777	·5444444	·5861111	·6277777	4	·6694444	·7111111	·7527777	·7944444	4	·8361111	·8777777	·9194444	·9611111	4	·00005
5	·5034722	·5451388	·5868055	·6284722	5	·6701383	·7118055	·7534722	7951388	5	·8368055	8784722	·9201388	·9618055	5	·00006
6	·5041666	·5458333	·5875000	6291666	6	·6708333	·7125000	·7541666	·7958333	6	·8375000	·8791666	·9208333	·9625000	6	·00007
7	·5048611	·5465277	·5881944	·6298611	7	·6715277	·7131944	·754 611	·7965277	7	·8381944	·8798611	·9215277	·9631944	7	·00008
8	·5055555	·5472222	·5888888	·6305555	8	·6722222	·7138888	·7555555	·7972222	8	·8388888	·8805555	·9222222	·9638888	8	·00009
9	·5062500	·5479166	·5895833	·6312500	9	·6729166	·7145833	·7562500	·7979166	9	·8395833	·8812500	·9229166	·9645833	9	·00010
10	·5069444	·54 6111	·5902777	·6319444	10	·6736111	·7152777	·7569444	·7986111	10	·8402777	·8819444	·9236111	·9652777	10	·00012
11	·5076388	·5493055	·5909722	·6326388	11	·6743055	·7159722	·7576388	·7993055	11	·8409722	·8826388	·9243055	·9659722	11	·00013
12	·5083333	·5500000	·5916666	·6333333	12	·6750000	·7166666	·7583333	·8000000	12	·8416666	·8833333	·9250000	·9666666	12	·00014
13	·5090277	·5506944	5923611	·6340277	13	·6756944	·7173611	·7590277	·8006944	13	·8423611	·8840277	·9256944	·9673611	13	·00015
14	·5097222	·5513888	·5930555	·6347222	14	·6763888	·7180555	·7597222	·8013888	14	·8430555	·8847222	·9263888	·9680555	14	·00016
15	·5104166	·5520833	·5937500	·6354166	15	6770833	·7187500	.7604166	·8020833	15	·8437500	·8854166	·9270833	·9687500	15	·00017
16	·5111111	·5527777	·5944444	·6361111	16	·6777777	·7194444	·7611111	·8027777	16	·8444444	·8861111	·9277777	·9694444	16	·00018
17	·5118055	·5534722	·5951388	6368055	17	·6784722	·7201388	·7618055	·8034722	17	·8451388	·8868 55	·9284722	·9701388	17	·00020
18	·5125000	·5541666	·5958333	·6375000	18	·6791666	·7208333	·7625000	·8041666	18	·8458333	·8875000	·9291666	·9708333	18	·00021
19	·5131944	·5548611	·5965277	·6381944	19	·6798611	·7215277	·7631944	·8048611	19	·8465277	·8881944	·9298611	·9715277	19	·00022
20	·5138888	·5555555	·5972222	·6388888	20	·6805555	·7222222	·7638888	·8055555	20	·8472222	·8888888	·9305555	·9722222	20	·00023
21	·5145833	·5562500	5979166	·6395833	21	·6812500	·7229166	·7645833	·8062500	21	·8479166	·8895833	·9312500	·9729166	21	·00024
22	·5152777	·5569444	·59 6111	·6402777	22	·6819444	·7236111	·7652777	·8069444	22	·848 6111	·89027 7	·9319444	·9736111	22	·00025
23	5159722	·5576388	·5993055	·6409722	23	·6826388	·7243055	·7659722	·8076388	23	·8493 55	·8909722	·93263 8	·9743055	23	·00027
24	·5166666	·5583333	·6000000	·6416666	24	·6833333	·7250000	·7666666	·8083333	24	·8500000	·8916666	·9333333	·9750000	24	00028
25	·5173611	·5590277	·6006944	·6423611	25	·6840277	·7256944	7673611	·8090277	25	·8506944	·8923611	·9340277	·9756944	25	·00029
26	·5180555	·5597222	·6013888	·6430555	26	·6847222	·7263888	·7680555	·8097222	26	·8513888	·8930555	·9347 22	·9763888	26	·00030
27	·5187500	·5604166	·6020833	·6437500	27	·6854166	·7270833	7 87500	·8104166	27	·8520833	·8937500	·9354166	·9770833	27	·00031
28	·5194444	·5611111	6027777	·6444444	28	·6861111	·7277777	·7694444	·81111 1	28	·8527777	·8944444	·9361111	·9777777	28	·00032
29	·5201388	·5618055	·6034722	·6451388	29	·6868055	·7284722	·77013 8	·8118055	29	·8534722	·8951388	·9368055	·9784722	29	·00034
30	·5208333	·5625000	·6041666	·6458333	30	·6875000	·7291666	·7708333	·8125000	30	·8541666	·8958333	·9375000	·9791666	30	·00035
31	·5215277	·5631944	·6048611	·6465277	31	·6881944	·7298611	·7715277	·8131944	31	·854 611	·8965277	·9381944	·9798611	31	·00036
32	·5222222	·5638888	·6055555	·6472222	32	·6888888	·7305555	·7722222	·8138888	32	·8555555	·8972222	·9388888	·9805555	32	·00037
33	·5229166	·5645833	·6062500	·6479166	33	·6895833	·7312500	·7729166	·814 833	33	·8562500	·8979166	·9395833	·9812500	33	·00038
34	5236111	·5652777	·6069444	·6486111	34	·6902777	·7319444	·7736111	·8152777	34	·8569444	·8986111	·9402777	·9819444	34	·00039
35	·5243055	·5659722	·6076388	·6493055	35	·6909722	·7326388	·7743055	·8159722	35	·8576388	·8993055	·9409722	·9826388	35	·00040
36	·525 000	·5666666	·6083333	·6500000	36	·6916666	·7333333	·7750000	·8166666	36	·8583333	·90 0000	·9416666	·9833333	36	·00042
37	·5256944	·5673611	·6090277	·6506944	37	·6923611	·7340277	·7756945	·8173611	37	·8590277	·9006944	·9423611	·9840277	37	·00043
38	·5263888	·5680555	·6097222	·6513888	38	·6930555	·7347222	·7763888	·8180555	38	·8597222	·90 3888	·9430555	·9847222	38	·00044
39	·5270833	·5687500	·6104166	·6520833	39	·6937500	·7354166	·77708 3	·8187500	39	·8604166	·9020833	·9437500	·9854166	39	·00045
40	·5277777	·5694444	·6111111	·6527777	40	·6944444	·7361111	·7777777	·8194444	40	·8611111	·9027777	·9444444	·9861111	40	·00046
41	·5284722	·57013 8	·6118055	·6534722	41	·69513 8	·736 055	·7784722	·82 1388	41	·8618055	·9034722	·9451388	·9868055	41	·00047
42	·5291666	·5708333	·612500	·6541666	42	·6958333	·7375 0	·7791666	·8208333	42	·862 00	·9041666	·9458333	·9875000	42	·00049
43	·5298611	·5715277	·6131944	·6548611	43	·6965277	·73 1944	·7798611	·8215277	43	·8631944	·9048611	·9465277	·9881944	43	·00050
44	·5305555	·5722222	·6138888	·6555555	44	·6972222	·7388388	·7805555	·8222222	44	·8638858	·9055555	·9472222	·9888888	44	·00051
45	·5312500	·5729166	·6145833	·6562500	45	·6979166	·7395833	·7812500	·8229166	45	·8645833	·9062500	·9479166	·9895833	45	·00052
46	·5319444	·5736111	·6152777	·6569444	46	·6986111	·7402777	·7819444	·8236111	46	·8652777	·9069444	·9486111	·9902777	46	·00053
47	·5326388	·5743055	·6159722	·6576388	47	·6993055	·7409722	·7826388	·8243055	47	·8659722	·907638	·9493055	·9909722	47	·00054
48	·5333333	·5750000	·6166666	·6583333	48	·7000000	·7416666	·7833333	·8250000	48	·8666666	·9083333	·9500000	·9916666	48	·00055
49	·5340277	·5756944	·6173611	·6590277	49	·7006944	·7423611	·7840277	·8256944	49	·8673611	·9090277	·9506944	·9923611	49	·00057
50	·5347222	·5763888	·6180555	·6597222	50	·7013888	·7430555	·7847222	·8263888	50	·8680555	·9097222	·9513888	·9930555	50	·00058
51	·5354166	·5770833	·6187500	·6604166	51	·7020833	·7437500	·7854166	·8270833	51	·8687500	·9104166	·9520833	·9937500	51	·00059
52	·5361111	·5777777	·6194444	·6611111	52	·7027777	·7444444	·78 1111	·8277777	52	·8694444	·9111111	·9527777	·9944444	52	·00060
53	·5368055	·5784722	·6201388	·6618055	53	·7034722	·7451388	·7868055	·8284722	53	·8701388	·9118055	·9534722	·9951388	53	·00061
54	·5375000	·5791666	·6208333	·6625000	54	·7041666	·7458333	·7875000	·8291666	54	·8708333	·912500	·9541666	·9958333	54	·00062
55	·5381944	·5798611	·6215277	·6631944	55	·7048611	·7465277	·7881944	·8298611	55	·8715277	·9131944	·9548611	·9965277	55	·00064
56	·5388888	·5805555	·6222 22	·6638888	56	·7055555	·7472222	·788 8888	·830 555	56	·8722222	·913 888	·9555555	·9972222	56	·00065
57	·5395833	·5812500	·62291 6	·6645833	57	·7062500	·74 9166	·7895833	·8312500	57	·8729166	·9145833	·9562500	·9979166	57	·00066
58	·5402777	·5819444	·6236111	·6652777	58	·7069444	·7486111	·790 2777	·8319444	58	·8736111	·9152777	·9569444	·99 6111	58	·00067
59	·5409722	·5826388	·6243055	·6659722	59	·7076388	·748 3055	·7909722	·8326388	59	·8743055	·9159722	·9576388	·9993055	59	·00068

APPENDIX (i)

THE VEDĀṄGA JYOTISHA CALENDAR.

(The substance of Sir S. Subrahmanyam Lectures delivered by the author for the Madras University in March 1916.*)*

Varāhamihira, to whom we owe largely the beginnings of modern Indian astronomy as well as of modern Indian astrology, says in *Bṛihat Samhita*, 3, 2 :—

āśleshārdhāt dakshinam, uttaram ayanam raveh dhanishthādyam
nūnam kadācit āsīt : yenoktam pūrvaśāstreshu
sāmpratam ayanam savituh karkaṭakādyam mṛgāditascanyat ;
uktā bhāvo vikṛitih ; pratyaksha parikshaṇaih vyaktih.

Translation.

" The southward journey of the sun is from the half of Asleshā ; his northward journey is from the beginning of Dhanishṭhā : it was so at one time as stated in old treatises : now the dakshināyana is from the beginning of Karkaṭaka and the other ayana is from the beginning of Makara, as may be plainly seen by the eye "

and in *Panchasiddhāntika* (translated by Dr. Thibaut and by Bāpu Devaśāstri), to the same effect :—

āśleshārdhāt āsīt yadā nivṛittih kiloshṇakiraṇasya ;
yuktam ayanam tadāsīt : sāmpratam ayanam punarvasutah :

In these two passages Varāhamihira states that at one time Dakhināyana, or the summer solstice, took place when the sun was in the middle of Āślesha nakshatra, and Uttarāyana or the winter solstice when the sun was at the beginning of Dhanishṭhā nakshatra, whereas in Varāhamihira's own time, the Dakshināyana, " as any one may see, " so he says, occurred when the sun was in the beginning of Karkaṭaka rāśi or Punarvasu nakshatra. Nevertheless, he says, the previous observations, recorded by ancient writers, were correct for *their* time : *yuktamayanam tadāsīt.*

2. The ancient observation referred to by Varāhamihira is obviously that recorded in the Vedāṅga Jyotisha, which, as we shall presently see, was just as ancient to Varāhamihira as Varāhamihira is to us ; in other words Varāhamihira's work stands at the centre of a period of astronomy whose span is 3,000 years, at one end of which we stand and at the other end the Vedāṅga Jyotisha.

Description of the Vedāṅga Jyotisha.—The Vedāṅga Jyotisha, a set of rules for ascertaining the year, month and day and fraction of a day, is well known to Indian teachers and students of the Veda who learn and recite it as part of the Veda. It is obscure as to a good deal of its contents, and has not been translated into English, but it was edited by Weber,—see paragraph 4 below,—and practically the whole of it (about 35 slokas, with omissions) is given in Dikshit's *History of Indian Astronomy* (in Mahrātti). Nevertheless, no one has endeavoured to construct or reconstruct the Vedāṅga Jyotisha system as a connected and consistent whole, just in the way, for instance, in which we are now able to construct the Sūrya Siddhānta scheme of years, months and days for any period to which that system might be applied, currently, retrospectively or prospectively.

3. Before Varāhamihira's time, only two methods of dividing the ecliptic were known to, and practised by, Indian astronomers. These methods were, first by the *ritus* or six seasons of the year, and secondly by the *nakshatras* or lunar mansions, of which 27 (sometimes 28) are, as is well known reckoned in the Indian calendar. The nakshatras are a natural division of the ecliptic, because each of them, measuring $\frac{360}{27}$ degrees $= 13\frac{1}{3}$ degrees, is the space travelled by the

moon along the stars in the course of a single day and night, so that a nakshatra is practically equal in length of time to a day and a night—see paragraph 27, page 7 of the text.

4. The chief works of reference on the subject of the nakshatras are Weber's two treatises in German (*Die Vedischen Nachrichten von den Nakshatra*, and *Ueber den Veda Kalender namens Jyotisha*), published respectively in 1860 and 1862, which do not appear to have been translated into English. Dr. Thibaut's monograph on *Mathematics, Astronomy and Astrology* in the German *Encyclopaedia of Indo-Aryan Research*, and the late Śankara Bālakrishna Dīkshit's *Bhāratīya Jyotishśastra* or "History of Indian Astronomy" (published in Mahratti in 1896) are two other important works, dealing with nakshatras, which may be mentioned in this connexion as still awaiting translation into English. In *Macdonnell and Keith's Vedic Index*, however, there are very good summaries in English of nearly all that is known at present about the ancient observations of nakshatras in vedic times.

5. *The Yuga of five years.*—We have information from two or three ancient sources on the subject of the synodical system of the Vedāṅga Jyotisha. All of it comes to this, that once in a yuga of 5 years the sun and moon must return to the same position that they occupied at the beginning of the yuga, and that position is the beginning of nakshatra *Dhaniṣṭhā* and Māgha śukḷa 1.

6. *Difference between the sidereal and the tropical year.*—We have to study with some care the meaning of the expressions "a year" and "5 years" in this definition of a yuga. In the Vedāṅga Jyotisha period, the Hindus seem to have been acquainted with only one kind of year, viz., the tropical. The tropical year is not a difficult kind of year for *us* to understand, since the European year which we all observe, is a nearly perfect tropical year. "Tropical year" means the kind of year which brings back the same seasons after the same number of days. At present the summer solstice, when the sun reaches his extreme limit in his northern course, falls on June 22; and we know that on June 22 we in India may expect rain every year and with the rain cultivation begins. Similarly, on December 22, when the sun is in the winter solstice or at his southernmost limit, we know that it is the coldest part of the year, and every year we expect the cold weather to return at that time and we are not disappointed.

7. Now, we have in use in the Tamil country another kind of year, that is, one which begins at present on April 13 or 14, but which 50 years ago used to begin on April 11; and which 5000 years ago, if any reckoning had been then kept, would have begun on 15 February (3102 B.C.) page 2, paragraph 4 of text. This year which at present imperceptibly gets away further and further from the tropical year, is called a sidereal year, and its initial day moves so slowly because every year the difference between it and the tropical year is only a few minutes of time; about a ghaṭika. (See paper No. ii in this appendix — *On luni-solar precession in Indian Astronomy.*) It naturally takes a long time for this difference to amount to a month or to two months.

8. Naturally, also, it took a long time for the ancient Hindus to understand the practical difference between the two kinds of years, and if we wish to enter into the details of ancient Indian chronology, it is necessary that we should realize clearly the consequences of the confusion in their minds. When Varāhamihira says that in his time the return of the sun was from Punarvasu nakshatra or from Karkaṭaka rāśi, whereas of old the sun returned from the half of Āślesha nakshatra, and that this ancient observation was correct at that epoch, he gives us in fact a first glimpse of the effect of the precession of equinoxes, a phenomenon, however, as to which he himself was entirely in the dark.

9. At present Dakshināyana, or the summer solstice, falls on June 22, and according to Table IV-C, Volume I of *Indian Ephemeris*, the sun's mean longitude on 22nd June 1916, or the 71st completed day of the Indian solar year, is 67·8 degrees or 68·1 degrees, if we include the equation. Now, since each nakshatra is $13\frac{1}{3}$ degrees in extent, it follows that the sun's nakshatra, when he has attained 67·8 degrees of longitude, is past the fifth

nakshatra and in the beginning of the sixth or Ārdrā nakshatra. It is a simple sum in arithmetic, that when the sun's nakshatra at Dakshināyana was Āśleshārdha or Sārpārdha, i.e., the middle of Āśleshā, his longitude must have been $113\frac{1}{3}$ degrees (since the longitude of the commencement of Āśleshā nakshatra is, by Eye-table S, page 156 supra, 106°, 40′ and its end 120°).

10. *Practical application of precessional chronology.*—We know from modern astronomy that the movement of the precession is 50″ of an arc per annum to the west (see next paper in this appendix), or one degree for every 72 years. Accordingly, for the precession to have moved through an arc corresponding to the interval between $113\frac{1}{3}$ and $67\frac{3}{4}$ degrees, i.e., $45\frac{7}{12}$ degrees, it must have taken $45\frac{7}{12} \times 72 = 547 \times 6 = 3{,}282$ years. Roughly, according to this calculation, the Vedāṅga Jyotisha observation must have been made 3,300 years before A.D. 1916, i.e., about 1400 B.C.

11. *Limitations of precessional chronology.*—Now, supposing we had no information from Varāhamihira himself as to when he lived, but only knew from his works that at the summer solstice in his day the sun was at 90 degrees and in Punarvasu nakshatra, whereas now he is in Ārdrā nakshatra and in 68 degrees longitude, we might argue that the difference between these longitudes, i.e., 22 degrees, multiplied by 72, i.e., 1584, would give us the number of years before A.D. 1916, when Varāhamihira lived. The result would be A.D. 332, or *circa* A.D. 300, whereas Varāhamihira actually wrote about A.D. 550. Allowing the same proportion of error for previous epochs, the antiquity of the Vedāṅga Jyotisha observation, noted above in paragraph 10, may also have to be reduced by 250/1620, i.e., $\frac{2}{13}$; in other words, from 3,300 years to 2,792 years before now, i.e., from B.C. 1400 to B.C. 850. Using the precessional factor of modern astronomy, one degree for 72 years, Mr. Tilak in his *Orion*, and Professor Jacobi in an article first published in a German scientific journal and reproduced in the *Indian Antiquary* for 1894 (page 158), simultaneously declared that the Vedāṅga Jyotisha preceded Varāhamihira's time by 1896 years, and that there was a still earlier period when correct astronomic observations had been made in India, and that was when the Vernal Equinox was in Mṛigaśīra nakshatra, longitude 53°, 20′, instead of in Aśvinī, 0° longitude, as in Varāhamihira's time, and that that epoch must have preceded Varāhamihira's own epoch by $53\frac{1}{3} \times 72 = 160 \times 24 = 3{,}960$ years, i.e., that the observation was made, and the Veda in which it is supposed to be alluded to, was composed (not *written*, because writing came long after), about B.C. 3500, i.e., 5,400 years before now. This period also may have to be cut down by 2/13, 5,400 years being reduced to the tune of 900 or 1,000 years, and the vedic antiquity brought down from B.C. 3500 to the region of B.C. 2500. The latter date more nearly approximates what we might call the philologist's vedic period (according to Max Muller, Weber, Macdonnell's *Ind. Lit.*, 1909, page 11, etc.), as distinguished from the astronomers' vedic period.

12. In the controversy which raged in the pages of the *Indian Antiquary* round the speculations of Messrs. Jacobi and Tilak referred to above, it does not seem to have been noticed that what we have called precessional chronology or the system of reckoning past years at the rate of 72 years to a degree of precession is apt to fail under certain conditions. We said, in paragraph 9 above, that if at the present day we tried to make a statement like what the author of the Vedāṅga Jyotisha and Varāhamihira respectively made regarding the date of return of the sun to the south in his annual course, we should say, following our principal guide in these matters, the Sūrya siddhānta, that the sun returned on June 22 when his mean longitude was 67·8 degrees. We would make the statement *that the sun returned southwards on June* 22 by observing the solstice with our own eyes, whereas we would make the statement *that his longitude then was* 67·8 *degrees* by calculating it from the first day of the Indian solar year 1916 A.D. (April 12·7605) when the sun, according to Sūrya siddhānta, attained 0° true sidereal longitude. But we know from paragraph 217 of the text (page 90) that owing to the sidereal error of Indian astronomy, the true sidereal longitude of the sun on April 12, A.D. 1916 (if by true sidereal longitude we understand the state of things which existed *circa* A.D. 530) was $3\frac{1}{3}$ degrees and not 0°. Now the precession moves

$3\frac{1}{3}$ degrees in $\frac{1}{3}^{o} \times 72 = 240$ years: and that is why we made a mistake of nearly 240 years when we attempted in paragraph 11 to calculate Varāhamihira's date by means of precessional chronology. And a similar mistake of greater or less magnitude, in proportion to the actual sidereal error, is likely to underlie all statements made by writers, ancient or modern, as to the sun's mean longitude, or, which is the same thing, the sun's nakshatra, at the time of the summer or of the winter solstice. We have to realize that the sun's *solstice* may be found from direct observation, but the sun's *nakshatra* would generally be determined by calculation from the day in the year when the sun is assumed to have reached 0 degree true or mean longitude, and that any error in that day would affect the results of precessional chronology.

13. The fundamental notion of the Vedāṅga Jyotisha is that the Sun at winter solstice should be at Dhanishṭhā nakshatra, at the beginning thereof, and at the summer solstice he should have reached the middle of Sārpa or Āśleshā nakshatra. The Vedāṅga Jyotisha or rather Garga Samhita, which embodies the same ideas but in plainer language lays down as follows :—

Garga's Scheme of the Calendar (*Dikshit*).

—	Uttarāyaṇa = Winter solstice.			Dakshiṇāyaṇa = Summer solstice.		
	Month and thithi.	Sun's nakshatra.	Moon's nakshatra.	Month and thithi.	Sun's nakshatra.	Moon's nakshatra.
1. Samvatsara ...	Magha ś. 1	Dhanishṭhā ...	Dhanishṭhā ...	Śrāv. ś. 7 ...	½ Āśleshā ...	Chitrā.
2. Parivatsara ...	„ ś. 13	„ ...	Ārdrā ...	„ b. 4 ...	„ ...	P. Bhādrapada.
3. Idavatsara ...	„ b. 10	„ ...	Anurādha ...	„ ś. 1 ...	„ ...	Āśleshā.
4. Anuvatsara ...	„ ś. 7	„ ...	Aśvini ...	„ ś. 13 ...	„ ...	P. Āshaḍha.
5. Idvatsara ...	„ b. 4	„ ...	Utt. Phalguṇi.	„ b. 10 ...	„ ...	Rohiṇi.

14. Dr. J. Burgess in his "*Notes on Hindu Astronomy*" (*J.R.A.S.* 1893), after making the observation that "the figures give, for the moon's sidereal revolution 27·313433 days and for the synodical month 29·516129 days," notes that for every 19 years the synodical months according to the *Vedāṅga Jyotisha* must be in defect by 3·399 days, while the sidereal months would be in defect by 2·093 days and the solar years themselves would be in excess by 14·084 days. Dr. Burgess concludes that the Vedāṅga Jyotisha betrays a "primitive and rough method of observation." Similar remarks occur in the *Vedic Index* of Messrs. Macdonnell and Keith.

15. Mr. Dikshit (page 89) quotes the following from *Garga Samhita* :—

yadā nivartate aprāptah Śravishṭhām Uttarāyaṇē,
āśleshām daksbiṇe (*a*) prāptah tadā vidyān mahadbhayam.

"When the sun turns back without having attained *Śravishṭhā* in his northward journey, or without having attained *Āśleshā* in his southward journey, then know that there will be a great disaster."

Clearly, in Varāhamihira's time, according to his own statement (paragraph 1 supra), the sun was so *far* from having attained *Śravishṭhā* and *Āśleshā* at his winter and summer solstices respectively, that the solstitial turning took place fully 23·20° before Śravishṭhā and Āśleshārdha. Evidently, therefore, the above passage in Garga, if Garga was a real author, must have been composed at a time when the Sun was still visiting Dhanishṭhā and Āśleshā at the two solstices and before there was any likelihood of his turning back without visiting them. At the same time, the passage indicates that this contingency was feared in Garga's time either because something similar had happened before, that is, the Sun had, in still more ancient times, been in the habit of visiting the nakshatra Satabhishaj or Pūrva Bhādrapada before turning north, but a change had taken place in this respect which change had been marked by great disaster ; or because the change or tendency to change had already begun to operate. A third inference may with some certainty be drawn from the passage, namely, that there was not even a

suspicion that the gradual shrinking of the Sun's path was in the order of nature; in other words, we may infer that the nature and effect of the precession of equinoxes was not then perceived.

16. We know that the Vedāṅga Jyotisha was still the current system at the time of Kauṭilya's *Arthaśāstra* which seems to have been composed about 300 B.C.; but at that time the Sun's solstices must have been at points which, by modern calculation, could have been only 11 degrees to the east of their positions in Varāhamihira's time; that is, already by 300 B.C. there was no sign of the Sun entering either Āśleshā or Dhanishṭhā nakshatra at the solstices. The time when the abortive return of the Sun became first noticeable must have been when his solstices were about 20 degrees to the east of where they were in Varāhamihira's time, i.e., $20 \times 72 = 1,440$ years before his time, or about 900 B.C., provided (as observed in paragraph 12 supra) there was no sidereal error. At that time the sun at summer solstice would have just fallen short of Āśleshā and would have turned south at 110 degrees instead of at 113 degrees (the middle of Āśleshā); and he would have turned northward at 290 degrees, instead of at 293°, 20′ (Dhanishṭhā) at winter solstice, i.e., 3 degrees short of (Dhanishṭhā) or Śravishthā. We may hence infer that the Vedāṅga Jyotisha must have been current before 900 B.C. (provided always there was no sidereal error), and that it continued to be current almost till Varāhamihira's time. If there was a sidereal error of the same sign and quantity as the modern sidereal error (·002361 degree per annum, vide page 90 of text), then the date 900 B.C. would have to be made proportionately later.

17. If, to be on the safe side, we suppose the Vedāṅga Jyotisha was current for even 600 years before the Christian era how did it happen that the primitive and rough method adverted to by Dr. Burgess (vide paragraph 14 supra) did not land its followers in confusion and disaster? Since, as he points out, after 19 years, tithis under the Vedāṅga Jyotisha must occur $3\frac{2}{5}$ days late, it must follow that after 19 years people would either have kept new-moon day when a moon 3 days old was shining in the sky or have given up the Vedāṅga Jyotisha altogether. Again it is probably unheard of that any people, however primitive, who follow the lunar calendar, would be so regardless of lunar phases as to keep full-moon when the moon was in the fourth day of her waning.

18. In handling such a system as the *Vedāṅga Jyotisha*, we must first of all assume, as an axiom, that no material deviation from the actual recurrence of tithis and nakshatras was contemplated under it: otherwise, the whole scheme was bound to collapse in 20 years. The scheme was intended to be worked in such a way that once in 5 years Māgha śukla 1 should coincide with "moon in Dhanishṭhā nakshatra" and "Sun in Dhanishṭhā nakshatra" at the time of Uttarāyana. Such schemes in substance are found all over the world. A scheme of this description is called a *tied* lunar calendar; i.e., a lunar calendar so constructed that it may periodically fall into line with the solar year. The Jews and the Greeks, among ancient nations of whose calendars we have precise information, had each of them a tied lunar calendar, but without the special Indian detail of nakshatras. In all such calendars the essential thing is that the recurrence of lunar *tithis*, as we call them in India, or lunar *phases* as they are called in Greek, should correspond to actual fact; and in India, under the Vedāṅga Jyotisha as well as under the later Sūrya siddhānta, which we now observe, there is another tie, that of the nakshatras whose actual recurrence also the calendar should faithfully represent. Such a calendar is subject to a very ready and natural test, because the scheme of tithis can be tested every fortnight by comparison with the full moon and the new moon: there may be an error of a single day, the first *phasis* or appearance of the moon after she has become new being for instance declared by the calendar a day too late or a day too early, but the error would never be permitted to exceed a single day, and would be rectified by dropping a tithi in the count, which we now call a *kshaya* tithi, or by adding a day to the lunar month, making it consist of 30 instead of 29 tithis. The advantage of the Indian *nakshatra* system is that it provides a safeguard and a remedy against an error of even a single day which might occur, as just shown, under a pure tithi system. The moon covers a whole nakshatra space of $13\frac{1}{3}$ degrees in the heavens in the course

of a single day; and if the calendar shows her to be in a nakshatra different from that which she actually occupies, we do not want to wait until new moon or until full moon to discover the error, and could rectify it at once by dropping a nakshatra or by prolonging the duration of a nakshatra.

19. The only difference between such a system and the present Sūrya siddhānta system is that under the latter the computation is so perfect that agreement between lunar *phases* or tithis and the daily lunar motion among the nakshatras is secured without the need of adjusting it from month to month by ocular observation, *pratyaksha parīkshaṇaih*. But supposing an adjustment was necessary under the Vedāṅga Jyotisha, it was effected without any practical trouble and the calendar was effectually safeguarded from error just as it is under the present system. Such adjustments in the Jewish and Muhammadan calendars are effected by a kind of judicial process, upon the ocular testimony of persons who declare on oath that they have seen the first crescent or lunar phasis on a particular evening (see Text, page 70, paragraph 163).

20. The same remark applies to the connected solar calendar of the Vedāṅga Jyotisha, though here the correction may have had to be deferred for a longer period; but here again, in the long run, there could have been no material deviation from solar phenomena. The ancient Indians of the *Vedāṅga Jyotisha* period kept two distinct reckonings of the sun's motion, although they were unconscious of the distinction. They noticed the four principal stages of the sun's motion, the summer and winter solstices (dakshiṇāyana and uttarāyaṇa) and the two equinoxes (vernal and autumnal, called *Vishu*), especially the solstices, and they also noticed the nakshatra occupied by the sun from fortnight to fortnight, just as they noticed the nakshatra occupied by the moon from day to day, and the *paksha* or half lunar month from fortnight to fortnight. The sun moves through a nakshatra space in 13·528013 days, according to modern European astronomy, and in 13·528102 days according to the second Sūrya siddhānta. Although we cannot visibly see the sun occupying a particular nakshatra space by day, we know from the nakshatra coming to the zenith at midnight that the sun must *then* be in a nakshatra 180 degrees removed from the zenith nakshatra; so that, if we have previously mapped out the ecliptic into 27 nakshatra spaces (whether equal or unequal does not matter for our present purpose), we should know, from the zenith nakshatra at midnight, what nakshatra the sun was in at that moment; and since the nakshatra space or any part of it can occupy the zenith for only $13\frac{1}{2}$ days, it follows that an error in the calendar regarding the sun's position among the nakshatras can be detected after $13\frac{1}{2}$ days, in any case after 27 days, or after the sun has done two nakshatra spaces. We have an illustration of this method of observation in the Tamil anthology, *Puṟanānūṟu* (selection No. 229), which says that the nakshatra Pūrva Phalguni (long. 133·0°) was on a particular day declining from the zenith at midnight, which means that the sun was then past $133° + 180° = 313°$ longitude, in other words, that it was then solar Panguni-Kumbha month.

21. We may say a word about the tied lunar year, as now observed in India. Neglecting for the moment the solar year and solar months observed in the Tamil country, what takes place over the rest of India, is this. The lunar year is tied to the solar year, but it is tied loosely, that is, in such a way that the lunar year may begin from 1 to 29 days before the solar year, but it must begin before the solar year and within one month before the commencement of the solar year.

22. Similarly, although the Vedāṅga Jyotisha says that 5 years should consist of 1,830 days, or 62 synodical months, or 61 sidereal months, it did not mean that any extensive deviations from the *actual* solar and lunar phenomena should be permitted for the sake of the 1,830 days. What actually took place under the Vedāṅga Jyotisha may be ascertained by studying the actual decursus of solar and lunar phenomena under such a system over a long series of years.

23. Tables A and B giving this information for periods of 5, 30, 35, 160, 315, 480 and 540 years are appended below. The figures for the first 30 years are simply those for the years A.D. 1897 to A.D. 1927 extracted from "*Indian Ephemeris*,

A.D. 1800 to *A.D.* 2000." It will be seen that on 2nd February 1897, the first year of the first cycle of five years began, as required by the Vedāṅga Jyotisha, on Māgha śukḷa 1 with the sun and the moon in nakshatra Dhanishṭhā. Every year, up to and exclusive of 1926, contains 365, 366 or 367 days, so that by the end of 29 years the sun at winter solstice has advanced 29 days from the point whence he started in 1897. In the last year 1926 if, as usual at the end of every cycle, an *adhika* month were inserted, the sun would be found to have passed from Dhanishṭhā into Satabhishaj and from Satabhishaj into Pūrva Bhādrapada. If, on the other hand, the usual adhika month was *not* added at the end of the sixth yuga of five years, a new yuga would begin on 3 February 1927, Māgha śukla 1, when the moon was in Dhanishṭhā and the sun's longitude at sunset would be 292 degrees, that is, practically, the beginning of Dhanishṭhā. Seeing that the indispensable rule was to begin a new cycle on Māgha śukḷa 1 with the sun and moon in Dhanishṭhā nakshatra, and it was not and could not be an indispensable rule to have 366 days to a year, this course would have suggested itself to the astronomers and almanac framers of the day automatically in any period of 30 years or six yugas under the Vedāṅga Jyotisha; by "automatically" we mean, quite naturally, and without deliberately infringing any of the rules of the Vedāṅga Jyotisha. In this sense we need not call the procedure a correction, because a correction is a deliberate innovation. Our illustration in Table A, page 14, applied to a 30-year period, shows that the rule about reckoning 366 days to a solar year has to be subordinated in practice to the rule about beginning every new cycle with Māgha śukḷa 1 when the sun and moon should both be in *Dhanishṭhā*. A glance at the *Indian Ephemeris* for the 30 years A.D. 1897 to A.D. 1927 (Table A, pages 454–55 below) will show that even during the course of the 30 years the year is occasionally one of 365 days and sometimes 367, and we should realize that in the Indian calendar at all times, including our own, the length of the year, whether lunar or solar, cannot be restricted to a certain number of integral days. We are accustomed now-a-days to the European calendar which is tied *fast* to the New Style, just as it was tied fast for 1,600 years before to the Julian or Old Style, while its months January to December are very loose; in fact the months correspond only roughly to the passage of the sun through each successive sign of the zodiac, or for the matter of that, through the successive constellations of the zodiac. The sun enters the *signs* about the 21st of each month and the *constellations* at the present time about the 15th *of each* month, but the European system of solar months represents neither the entry of the sun into the signs of the zodiac, nor his entry into the successive constellations of the zodiac or nakshatras.

24. The Sūrya siddhānta system at present observed all over the country and the Vedāṅga Jyotisha, which preceded the Sūrya siddhānta and which appears to have been observed for an equally long time, and over an equally large extent of country, both lay stress on the precise ascertainment of the days of new moon and full moon and of the intermediate tithis or stages, and they also lay stress on the nakshatra which the moon occupies each day. They do not, and could not, play fast and loose with the moon's phases and the moon's nakshatras. They do not seem to have been, or to be, equally precise about the number of integral days to be reckoned to a year. The Sūrya siddhānta only stipulates that the lunar year shall begin within $29\frac{1}{2}$ days before the Mēsha sankrānti, while the Vedāṅga Jyotisha stipulated that the year should begin at uttarāyaṇa, i.e., at or after winter solstice when the sun should have at least reached *Dhanishṭhā* nakshatra.

25. A period of 15 years would have been enough to show the calendar makers under the Vedāṅga Jyotisha that after that period, i.e., after only three yugas of five years each, the sun would be 13 or 14 days *past* Dhanishṭhā when he reached winter solstice. It is an inevitable postulate under a scheme like that of the Vedāṅga Jyotisha where so many coincidences are necessary for a cycle of five years, viz, (1) Māgha śukḷa 1, (2) Moon in Dhanishṭhā, (3) Sun in Dhanishṭhā, and (4) Sun in winter solstice, that some of the mutual concomitants must be regarded as indispensable and the others must be treated somewhat loosely. That the

moon should be in Dhanishṭhā and that the day or tithi should be Māgha śukḷa 1, were no doubt regarded as indispensable items, and in fact the length of a cycle was fixed at 1,830 days with full knowledge that that was the whole number of days constituting 62 synodical and 67 sidereal months, respectively (1,830·896 days and 1,830·552 days), and with equally full knowledge that it did *not* correctly represent five tropical years, that is, five returns of the sun to the same solstice. A tropical year, according to modern astronomy, consists of 365·2422408 days. Five such years would be completed in 1826·211204 days, that is, $4\frac{3}{4}$ days short of the period necessary for the completion of 62 synodical months. We might at first think it strange that the framers of the Vedāṅga Jyotisha calendar should have been so ignorant or so careless as to perpetrate an error of $4\frac{3}{4}$ days for every five years, or nearly one day for every year, and this is what Dr. Burgess and other writers on the subject have assumed. But the error is so palpable that we are driven to conclude that there was some explanation which is not on the surface. We shall find a satisfactory explanation if we view the matter from a practical standpoint. For their purpose, it was necessary to observe the return of new moons and full moons and it was also necessary to observe the intermediate tithis and nakshatras of the moon very strictly. By "strictly," we do not mean that they allowed for the moon's anomaly, which at that time they seem to have been unaware of, but they evidently saw to it that the calendar brought out the mean tithis and mean nakshatras correctly. Accuracy in these respects was sufficiently assured by a cycle of 62 lunar synodical months and 67 lunar sidereal months. An excess of one day per annum in the solar year meant the movement of the sun through one nakshatra space in excess of 360 degrees once in $13\frac{1}{3}$ years and in 30 years the excess would be two nakshatra spaces. We must assume, though we are not so told, that a system which was current for at least 1,000 years made some provision to guard against an error of two nakshatra spaces in the sun's position accumulating after barely 30 years.

26. The Vedāṅga Jyotisha scheme supposes the insertion of an adhika or intercalary lunar month in the middle of the third year and at the end of the fifth year of every yuga. This intercalation was necessary, since otherwise the sun would not reach at the end of the first five lunar years of 12 lunar months each, the nakshatra whence he started. But if at the end of six yugas or 30 years the sun was already in the nakshatra from which he had started at the beginning of the first yuga without the need of intercalating a lunar month, then obviously it was not necessary to intercalate the second *adhika* month at the end of that yuga. The principle, now observed under the Sūrya siddhānta, of inserting an adhika month only when necessary to bring the sun to his expected nakshatra must have been observed at least to this extent under the Vedāṅga Jyotisha.

30 true tropical years (modern) = 10,957·27 days.
30 true sidereal years (modern) = 10,957·69 days.
371 synodical months (6 × 62 less 1) = 10,955·85 days.

At the end of this latter period the sun would be 1·84 days short of the nakshatra from which he had started on his first yuga. In five cycles of 30 years each or 150 years, the sun would be $5 \times 1{\cdot}84 = 9{\cdot}2$ days short of the nakshatra from which he is assumed to start at the beginning of each five year period. This deficiency would be made up, however, at the end of two more yugas of five years each when the sun would have been $2 \times 4{\cdot}64 = 9{\cdot}28$ days further on his nakshatra-path than he had been at the beginning of the yuga following 150 years.

27. The net result, as we may see more precisely from the printed Table B, page 456 below, was that the Vedāṅga Jyotisha year, by the natural and spontaneous device of dropping the adhika month when it was not required, that is, at least once in 30 years, could, after 160 years, be converted in practice into a true modern sidereal year, not differing from the latter up to four decimal places.

28. *Comparison with the Julian and Gregorian Calendars.*—The Julian calendar, as modified by Pope Gregory XIII, established a standard of accuracy by counting 365 days to a year, and making the requisite periodical adjustments by (1) adding an

extra day for every four years, and (2) dropping these extra days three times in the course of 400 years. The Vedāṅga Jyotisha attained the same end by treating every year as a year of 366 days and making the necessary adjustments once in 30 and once in 480 years. In the case of the Julian and Gregorian calendars, the reforms had to be carried out by statute, or by papal bull; in the case of the Vedāṅga Jyotisha the reform operated in virtue of the very necessities of the case, viz., the necessity of bringing the sun up to Dhanishṭhā nakshatra (once in 480 years) and the necessity of bringing him back to nakshatra Dhanishṭhā once in 30 years.

29. It thus happens that 30 years' and 160 years' cycles are also nearly perfect cycles of nakshatra or sidereal months under the Vedāṅga Jyotisha system. For, the 30-year period or 371 synodical months, or 10,955·85 days comprise 401 complete sidereal months less ·14 of a day—see printed Table A (page 455); while the 160-year period or 58,441·03 days contain 6,417 sidereal months less ·02 of a day. This shows that at the end of the periods in question the moon as well as the sun would enter its original nakshatra, Dhanishṭhā.

30. We have made the calculation on the assumption that the correct modern or Sūrya siddhānta periods for the synodical month and sidereal month were observed under the Vedāṅga Jyotisha, and we are justified in doing this, because the Vedāṅga calendar had continually in sight the lunar phases and the nakshatras of both sun and moon. It might go wrong occasionally by a tithi or a nakshatra, but it would be set right at once by comparison with the heavens.

31. It is otherwise with the Vedāṅga *tropical* year, because the Vedāṅga Jyotisha astronomer had not the same opportunity and the same practice of frequently setting right his calendar with reference to the *sun's* nakshatra. There was nothing absolutely to prevent his doing so, because he could ascertain the sun's nakshatra by watching the nakshatra which came to the zenith at midnight (see paragraph 20 supra), but if he made a correction in the sun's nakshatra before a synodical or sidereal month became complete, the sun's movements would cease to keep pace with those of the moon, and the jyotishya (or astronomer) ran the risk of disturbing the daily lunar reckoning which in his estimation was of far more importance than the solar reckoning. Therefore, before making a correction in the solar reckoning, he would wait until the lunar reckoning was brought up by at least one complete circuit. We saw above that he probably adopted this plan once in 30 years. He may have effected the correction at other times, but the point is that *whatever corrections were effected would be reducible to this standard.*

32. This leads us to the second reflection. If after 160 years, and by virtue of corrections made every 30 years, the Vedāṅga Jyotisha year was brought to the same standard of accuracy as a modern sidereal year, whereas what that system was in search of, though unconsciously, was a tropico-sidereal year, then like the Julian year, the Jyotisha year also needed a Gregorian reform. Precisely so: but before we mention the reform, it will be instructive, and it will serve to test our knowledge of first principles, to realize what exactly were the difficulties which confronted the Vedāṅga Jyotisha astronomers after 480 years.

33. In the first year after the lapse of 160 years, the sun and moon had to be in nakshatra Dhanishṭhā at uttarāyaṇa or winter solstice. We have seen that after 160 such years as we have supposed, the moon would exactly reach nakshatra *Dhanishṭhā*. For the sun to reach exactly *Dhanishṭhā* as in year 0, it would take by modern astronomy, $160 \times 365{\cdot}236354 = 58{,}441{\cdot}02$ days.

For the sun to reach exactly uttarāyaṇa, it would take 160 tropical years (modern) $= 160 \times 365{\cdot}2422408 = 58{,}438{\cdot}76$ days.

We saw above that the cycle of 160 luni-solar Vedāṅga years would be completed in 58,441·03 days.

Difference between 160 Vedāṅga years and 160 true tropical years, 2·26 days.

Difference between 160 Vedāṅga years and 160 true sidereal years, ·01 day or 15 minutes of time.

That is, after 160 years, the Vedāṅga Jyotisha astronomer would announce the sun as entering nakshatra Dhanishṭhā on the exact day on which this entry would take place according to modern astronomy, with a difference of only 15 minutes of time, and he would be thinking of proclaiming the advent of *uttarāyaṇa* or winter solstice at the same moment when, however, the sun would have turned back from the solstice and have done $2\frac{1}{4}$ days on his northward journey, instead of merely starting just then on that journey, as prescribed in the Vedāṅga scheme. If he noticed the latter phenomenon, namely, the acceleration of the solstice, for really it was such, the jyotishya or astronomer would have become aware that the sun had done that which Garga had predicted would be the forerunner of disaster (page 446, paragraph 14 supra), viz., he had turned on his northward journey $2\frac{1}{4}$ days *before* reaching Dhanishṭhā. After 12 times 160 years, or 1,920 years, the divergence between the nakshatra and the solstice and the probability of impending disaster would become quite patent, because by then the sun would have turned back from the solstice some 27 days before either Māgha śukla 1, or the official uttarāyaṇa was announced, although the official almanac would correctly represent the sun as having just reached Dhanishṭhā. The error was corrected in Varahamihira's home by finally abandoning the solstitial or tropical year for purposes of civil reckoning and adopting the sidereal year instead. It will be shown in the next paper that this change of practice must have been adopted with reference to A.D. 532 as an epoch or new starting point.

34. We might similarly compare the state of things under the Vedāṅga Jyotisha after 30 years.

The sun's return to winter solstice would be accomplished in 30 tropical years = 10,957·267 days.

30 true sidereal years which would bring back the sun to nakshatra Dhanishṭhā = 10,957·691 days.

Difference, ·42 of a day.

30 Vedāṅga Jyotisha years or 371 synodical months (vide paragraph 26 supra) which were expected to bring back winter solstice and nakshatra Dhanishṭhā, according to Jyotisha reckoning, would take 10,955·85 days.

35. We are now in a position to understand the statements made by Varāhamihira in regard to Vedāṅga Jyotisha. He says that in his time the sun's longitude at summer solstice was in the Karkaṭaka rāśi (90 degrees) while his longitude at winter solstice was in Makara rāśi (270 degrees); that formerly the solstices were in the middle of Āśleshā (113 degrees, 20 minutes), and the beginning of Dhanishṭhā (290 degrees, 20 minutes), and that these positions were correct at that time. It is inferrible from this passage that though the Vedāṅga Jyotisha still assigned the same longitudes as before (Āśleshārdha and Dhanishṭhādi) to the sun at the two solstices, these positions were no longer correct, in Varāhamihira's time "as any one might see with his own eyes" (*pratyaksha parikshanaih*).

36. We have seen that taking a long period of 160 years the Vedāṅga Jyotisha was probably correct as to the length of the sidereal year, the length of the synodical month and the length of the sidereal month, in other words, that when it said that a yuga of 5 years should begin with Māgha śukla 1 at the winter solstice, with the sun and moon in nakshatra Dhanishṭhā, all these items, except as to the solstice, came out quite correct once in 160 years, and that in the opinion of Varāhamihira, the solstice was also correctly recorded by the Vedāṅga Jyotisha *at one time*. What that time was would not be a matter involved in doubt if we knew for certain that the equinox had moved through an arc equal to the interval between the beginning of Dhanishṭhā (293° 20′) and the beginning of Makara (270 degrees), or which is the same thing, and which we also hold on the authority of Varāhamihira, between the half of Āśleshā (113° 20′) and the beginning of Karkaṭaka rāśi (90 degrees). Applying these intervals to the summer solstices, we may infer that when Varāhamihira says the sun turned south in his time from Punarvasu nakshatra (80° to 93° 20′) he means that in his day the summer solstice was at 90 degrees of the sun's longitude, i.e., in the last quarter or pāda of Punarvasu; first, because anything before 90 degrees would not be in Karkataka rāśi, where also he says the sun was

at summer solstice in his time, and secondly because 90 degrees is the result of deducting 23° 20′ from Āśleshārdha, 113° 20′, the position in Vedāṇga Jyotisha. But supposing the solstices in Varāhamihira's time were at 93 degrees and 273 degrees, respectively, and these more ancient solstices, i.e., those under the Vedāṇga Jyotisha were at 113° 20′, and 293° 20′, respectively; the statements made by Varāhamihira would still be strictly correct, although we cannot but observe that a longitude of 93 degrees would be correctly described by a lay observer as being in Pushya rather than in *Punarvasu* nakshatra.

37. Supposing, for argument's sake, that we took the full 23° 20′ to be the movement of precession between the two epochs, that would not be accounted for except by conceding an interval of 1,680 years between Varāhamihira and the Vedāṇga Jyotisha. We may determine Varāhamihira's epoch for our purposes as being A.D. 532 (See paper ii in this appendix, page 458, paragraph 7) according to Sūrya siddhānta methods, and we may do so on considerations independent of Varāhamihira's own statements, though his statements present no serious divergence from our determination. If so, the period of the Vedāṇga Jyotisha observation may be safely taken as not later than A.D. 1680 minus 531 = 1149 B.C., provided, as before, there was no sidereal error in the Vedāṇga Jyotisha calculation of the sun's mean longitude.

38. The statement about the winter solstice being in Māgha lunar month occurs in several ancient works.

VEDĀṆGA JYOTISHA: verse 74.

Prapadyete śravishṭhādau sūryacandramasā vudak
sārpārdhe dakshiṇārkāstu māgha śrāvaṇayoh sadā.

i.e., "Uttarāyaṇam takes place when sun and moon join in Śravishṭhā at the beginning of Māgha. In Śravana month at the half of Āśleshā the sun has his dakshiṇāyaṇa."

GARGASAMHITA (quoted by Dikshit) verses 4, 5.

yadā māghasya śukḷasya pratipadi uttarāyaṇam
sahodayam śravishṭhābhih somārkau pratipadyatah
tadatra nabhasah śukla saptamyām dakshiṇāyanam
sārpārddhe kṛute yuktim chitrāyāmcha niśākare

"When sun and moon join in Śravishṭhā or śukḷa 1 of Māgha, it is uttarāyaṇa, and then dakshiṇāyaṇa is on śukḷa 7 of Śravana month, when the sun is the middle of Āśleshā and moon is in Chitrā nakshatra."

Baudhayana Srauta Śūtra (cited by Mr. Shāmaśāstri in his *Gavamayana*).

māghe māsi dhanishṭhābhih uttareṇaiti bhānuman
ardhāśleshaśravanasya dakshiṇe upanivartate

"In the month of Māgha the sun goes north with the asterism Dhanishṭhās; in the month of Śrāvaṇa he returns south in the middle of the asterism Āśleshā."

39. Probably the earliest reference to the fact that the winter solstice coincided with Māgha śukḷa 1 is that in the Kaushītaka Brahmaṇa (quoted from Weber in *Macdonnell and Keith's Vedic Index*) which says that the solstice falls *Māghasya amāvāsyāyām*.

Probably again the latest reference to the Vedāṇga Jyotisha arrangement is to be found in Kautilya's *Arthaśāstra*, whose date has been placed by Dr. Fleet as well as by Mr. K. V. Rangaswami Ayyangar about 300 B.C. In the *Arthaśāstra* the remark is made that the seasons from *śiśira* (Māgha and Phāiguṇa) are uttarāyaṇa, and those from *varsha* (Śravaṇa and Proshṭhapada) are dakshiṇāyaṇa. Surely in 300 B.C. the winter solstice was not in the same nakshatra on Māgha śukḷa 1 as it had been in 1100 B.C.; but here again, if we reflect carefully on the Indian practice when speaking of the calendar, we shall be convinced that the retention in the Arthaśāstra of the ancient solstitial coincidence was not unjustifiable.

40. To the Indian still, as in the Vedāṇga Jyotisha period, the essential thing is the lunar month and tithi and the moon's nakshatra. During the currency of the Vedāṇga Jyotisha, there was a further preoccupation, that the

sun's uttarāyaṇa should not occur *before* he had reached Dhanishṭhā nakshatra. That uttarāyaṇa was announced late, i.e., a few days *after* the sun had turned north, provided he had reached nakshatra Dhanishṭhā, was a matter of little consequence. It is outraging the common sense of the people who constructed the Jyotisha to suppose that they did not know that in a 5 year period of 1830 days and 366 days to a year, the sun would not be entering into uttarāyaṇa on the same day each year, but must enter it a day earlier each year. Moreover, "uttarāyaṇa" means the northward journey of the sun and not merely his entry on the northward journey; and provided the sun and the moon had reached their respective nakshatras at or before the commencement of the year, it did not matter if uttarāyaṇa in the sense of the *entry* into uttarāyaṇa, was some days past.

41. We can account for a year of 366 days only on the supposition that a correction was made, though at long intervals, and we have seen that on the principles of the calendar, a correction would naturally suggest itself once at the end of every 30 years and again at the end of every 480 years. It may be that the first correction was made at the end of 35 or 40 years and the second correction at the end of 510 or 540 years. For Indian purposes, a correct sidereal year is, and was probably at all times, not excluding the vedic period, more useful than a correct tropical year. That it should have been so even during the period when a tropical calendar was in use may appear surprising, but the Vedic and Vedāṅga Jyotisha calendars were not tropical but tropico-sidereal. A strictly tropical calendar would very soon necessitate a deviation from the scheme of nakshatras for the different ayanas in the different years of a yuga: Hindu usage abhorred any such deviation. Why they abhorred it is another question. Varāhamihira says in his Bṛihatsaṁhita that if the sun should turn north without reaching *Dhanishṭhā* it portends disaster to people in the north and if he turns south without reaching the half of Āśleshā, he portends disaster to those in the south. This statement seems to establish 1) that the solstice had at some previous time actually got away from its then nakshatra and that the Vedāṅga Jyotisha then made a last endeavour to tie the solstitial sun firmly to the nakshatra Dhanishṭhā; (2) that men in those days did not, as we do now, expect the precession to move definitely at a certain pace every year, but that at long intervals of years they woke up dimly to the discovery that the solstices had got away somehow and unaccountably from their fast friends the nakshatras; (3) that a divergence of a solstice from its nakshatra was noticed only when the nakshatra was not reached, not when the nakshatra having been reached, uttarāyaṇa was kept for civic and religious purposes a few days or even whole weeks late.

THE VEDANGA JYOTISHA CALENDAR—TABLE A.

Annuary for 30 years applied to the years A.D. 1897—A.D. 1927.

Garga's Scheme of the Calendar (Dikshit).

	Uttarāyaṇa = Winter solstice.			Dakshiṇāyaṇa = Summer solstice.		
	Month and tithi.	Sun's nakshatra.	Moon's nakshatra.	Month and tithi.	Sun's nakshatra.	Moon's nakshatra.
1. Samvatsara ...	Māgha ś. 1.	Dhanishṭhā.	Dhanishṭhā.	Śrāv. ś 7.	½ Āśleshā.	Chitrā.
2. Parivatsara ...	„ ś. 13.	„	Ārdrā.	„ b. 4.	„	P. Bhādrapadā.
3. Idavatsara ...	„ b. 10.	„	Anurādhā.	„ ś. 1.	„	Āśleshā.
4. Anuvatsara ...	„ ś. 7.	„	Aśvinī.	„ ś. 13.	„	P. Āshaḍhā.
5. Idvatsara ...	„ b. 4.	„	Utt. Phalgunī.	„ b. 10.	„	Rohiṇī.

1 { (1) A.D. 1897 February 2 Māgha Śukla 1, Moon in Dhan. Sun in Dhanishṭhā.
(2) A.D. 1898 „ 3 „ „ 13, „ Ārdrā.
(3) A.D. 1899 „ 4 „ Bahula 10, „ Anurādhā.
(4) A.D. 1900 „ 5 „ Śukla 7, „ Aśvinī.
(5) A.D. 1901 „ 6 „ Bahula 4, „ Uttara Phalgunī.

2	(6) A.D. 1902	February	8	Māgha	Śukḷa 1,	Moon in	Dhanishṭhā.
	(7) A.D. 1903	,,	9	,,	,, 13,	,,	Ārdrā.
	(8) A.D. 1904	,,	10	,,	Bahula 10,	,,	Anurādhā.
	(9) A.D. 1905	,,	10	,,	Śukḷa 7,	,,	Aśvinī.
	(10) A.D. 1906	,,	12	,,	Bahula 4,	,,	Uttara Phalgunī.
3	(11) A.D. 1907	,,	12	,,	Śukḷa 1,	,,	Dhanishṭhā.
	(12) A.D. 1908	,,	13	,,	,, 13,	,,	Ārdrā.
	(13) A.D. 1909	,,	14	,,	Bahula 10,	,,	Anurādhā.
	(14) A.D. 1910	,,	15	,,	Śukḷa 7,	,,	Aśvinī.
	(15) A.D. 1911	,,	16	,,	Bahula 4,	,,	Uttara Phalgunī.
4	(16) A.D. 1912	,,	18	,,	Śukḷa 1,	,,	Dhanishṭhā.
	(17) A.D. 1913	,,	18	,,	,, 13,	,,	Punarvasu (not Ārdrā).
	(18) A.D. 1914	,,	18	,,	Bahula 10,	,,	Anurādhā.
	(19) A.D. 1915	,,	20	,,	Śukḷa 7,	,,	Bharaṇī (not Aśviṇī).
	(20) A.D. 1916	,,	22	,,	Bahula 4,	,,	Hastā (not Uttara Phalgunī).
5	(21) A.D. 1917	,,	21	,,	Śukḷa 1,	,,	*Dhanishṭhā.*
	(22) A.D. 1918	,,	22	,,	,, 13,	,,	Punarvasu (not Ārdrā).
	(23) A.D. 1919	,,	24	,,	Bahula 10,	,,	Jyeshṭha (not Anurádhā).
	(24) A.D. 1920	,,	25	,,	Śukḷa 7,	,,	Bharaṇī (not Aśviṇī).
	(25) A.D. 1921	,,	25	,,	Bahula 4,	,,	Hastā (not Uttara Phalgunī).
6	(26) A.D. 1922	,,	26	,,	Śukḷa 1,	,,	*Dhanishṭhā.*
	(27) A.D. 1923	,,	28	,,	,, 13,	,,	Pushya (not Ārdrā).
	(28) A.D. 1924	,,	28	,,	Bahula 10,	,,	Jyeshṭhā (not Anurādhā).
	(29) A.D. 1925	,,	28	,,	Śukḷa 7,	,,	Bharaṇī (not Aśviṇī).
	(30) A.D. 1926	March	2	,,	Bahula 4,	,,	Hastā (not Uttara Phalgunī).
	(31) A.D. 1927	,,	3	,,	Śukḷa 1,	,,	Sa'abh. (not Dhanishṭhā). **N.B.**—Sun's Long. on March 3 = 319° = nearly P. Bhad. (320°) not Dhanishṭhā = 293 3°.
		February	3	,,	,, 1,	,,	Dhanishṭhā— **N.B.**—Sun's Long. on February 3 = 292°, i.e., practically, Dhanishṭhā (= 293·3°).

30 Years' Cycle (Vedāṇga Jyotisha).

(1) 30 true tropical years (modern) = 10957·27 days. (365·2422408 d. a year).
(2) 30 true sidereal years (modern) = 10957·69 days. (365·256354 d. a year).
(3) 371 synodical months (6 × 62 less 1) = 10955·85 days. (Sūrya siddhānta, at 29·530588 days per month).
Difference between (2) and (3) = 1·84 days for every 30 years.
(4) 401 sidereal lunar months (6 × 67 less 1) = 10955·99 days. (Sūrya siddhānta at 27·32167 days to each sidereal month).
Difference between (3) and (4) = ·14 of a day.

480 Years' Cycle (Vedāṇga Jyotisha).

(5) 480 true tropical years (modern) = 175,316·275584 days.
(6) 480 true sidereal years (modern) = 175,323·0432 days.
(7) 480 Vedānga Jyotisha years (16 × 371 months + 1 month) = 175,323·100956 days.
(8) Difference between (5) and (7) = 6·8 : 6 days.
(9) ,, (6) and (7) = ·057 day = 1 hr. 26′ for 480 years, or 10 seconds of time per annum.
(10) ,, (5) and (7) for 1440 (= 3 × 480) years is 20·478 days.
(11) 6417 lunar sidereal months (16 × 401 + 1 month) = 175,323·156 days.
(12) Difference between (7) and (11) = ·05543 of a day.

Conclusion (*a*) The Vedāṇga Jyotisha year would, in the course of 480 years, become a true sidereal year, differing from the modern true sidereal year by 208 palas for 480 years, or by less than half a pala or 10 seconds of time per annum.

(*b*) From differences (9) and (12) it follows that after 480 such Vedāṇga Jyotisha years as are here supposed, the yuga of 5 years must begin once more with Māgha śukḷa 1, the Moon in Dhanishṭhā, and sun in Dhanishṭhā.

(*c*) From difference (10) it follows that a period of at least 1440 years must, other considerations apart, separate the commencement of the Vedāṇga Jyotisha era from Varāhamihira's epoch.

THE VEDÂNGA JYOTISHA TABLE B—Examples of Yuga, Cycle and Exeligmos.

	I *Yuga* of 5 years. 12 Synodical months to a year plus 2 adhika months, added at the end of 2½ years and 5 years respectively. No. of Synod. mos.=62. No. of Sidereal mos. to a yuga=67.	II *Cycle* of 30 years. 6 yugas like I; last yuga has 61 Synod. mos. not 62 and 66 Sid. mos. not 67. 8×62−1=371 Synodical months. 6×67−1=401 Sidereal months.	III *Cycle* of 35 years. 7 yugas like I; but last yuga has 61 Synod. mos. not 62 and 66 Sid. mos. not 67. 7×62−1=433 Synodical months. 7×67−1=468 Sidereal months.	IV *Exeligmos* of 160 years. 5 cycles, like II, of 30 years each plus 2 ordinary yugas like I. 5×371+2×62=1979 Synodical mos. 5×401+2×67=2139 Sidereal mos.	V *Exeligmos* of 315 years. 9 cycle, like III, of 35 years each. Last yuga of last cycle has 60 Synod. mos. not 61, and 65 Sid. mos. not 66. 9×433−1=3896 Synodical mos. 9×468−1=4211 Sidereal mos.	VI *Exeligmos* of 540 years. 18 cycles, like II, of 30 years each. Last yuga of last cycle has 62 Synod. mos. not 61, and 67 Sid. mos. not 66. 18×371+1=6679 Synodical mos. 18×401+1=7219 Sidereal mos.
A. Total number of days in Synodical months composing each yuga, cycle or exeligmos. [Sûrya Sid. Synod. mos.=29·530588 days.]	1830·90	10,955·85	12,786·74	58,441·03	115,051·17	197,234·83
B. Total number of days at the rate of 365·2422403 days to a tropical year (modern).	1826·21	10,957·27	12,783·48	58,438·76	115,051·29	197,230·81
C. Total number of days at the rate of 365·256354 days to a Sidereal year (modern).	1826·28	10,957·60	12,783·97	58,441·01	115,055·64	197,238·40
D. Total number of days at the rate of 27·32166 days to a Sidereal lunar month (modern).	1830·55	10,955·99	12,786·56	58,441·05	115,051·68	197,235·35
E Average No. of days in (1) Ved. Jyo. Synodical month.	29·53/3225	29·530/090	29·53/118	29·53057/1 (mod. synodical month.)	29·5305/44	29·5306/183
E Average No. of days in (2) „ „ Sidereal month.	27·32/835	27·3216/96	27·32/265	27·3216/45 (mod. sidereul month.)	27·321/54	27·3216/51
E Average No. of days in (3) „ „ year.	365/2000	365·2/0000	366/·343	365·256/25 (mod. sidereal year.)	365·24/127 (modn. trop. yr.)	365·25 (A Julian year.)

N.B.—1. The averages are obtained by dividing the nearest integer in each column against A by total number of years or months as the case may require.

2. No. of decimal places to which each average is correct by modern standards is indicated by a cross bar.

Explanatory Note.

The working of the Vedâṇga Jyotisha calendar was very much like the working of the modern Indian calendar in that during the currency of a normal yuga of 5 years, i.e., a yuga beginning when the Sun as well as the Moon was in nakshatra Dhaniṣṭhâ on Mâgha śukla 1, the lunar month of Mâgha might begin any time from 0 to 29·50 days *before* the Sun had reached Dhaniṣṭhâdi (293⅓°), just as the modern lunar year (Chaitra pratipada) begins at intervals varying from 0 to 29·5 days *before* the Sun reaches Aśvinâdi or Méshadi (0°); but after the expiry of the first normal yuga, the month of Mâgha would begin at varying intervals, from 4½ to 2·½ days *after* the Sun had reached Dhaniṣṭhâ nakshatra. A year in which the month of Mâgha was going to begin 29½ days *after* the Sun had reached Dhaniṣṭhâ would be a year when the 62nd month would begin *with* the Sun in Dhaniṣṭhâ. In such a case all that was necessary to rectify the calendar was to drop the Adhika month, viz., the 62nd month and make the month of Mâgha begin *at once*, i.e., without being preceded by an Adhika month. This procedure would follow *automatically* from the very notion of an Adhika month.

What is indicated in the Vedâṇga Jyotisha is only a first outline of the general calendar. We must remember that at the time writing was not known and the rules had to be committed entirely to memory. As usual such rules were brief and apophthegmatic, laying down principles rather than formulæ.

It has not hitherto been suspected that the rule about inserting an adhika month twice in the course of five years must have been subject to exceptions. A little reflection will show, however, that an adhika month had to be inserted only when necessary. It is clearly laid down in Kauṭilya's Arthaśâstra that against a month of 30 civil days the Moon loses ½ day and the Sun gains ½ day, and that when the difference between the Sun's and the Moon's movements amounts to a month, an adhika month is added. The deviation at any moment from the standard yuga could be measured by the Sun's nakshatra, no deviation except of a trivial nature being permitted in regard to the Moon's tithi and the Moon's nakshatra. If the Sun's nakshatra was 29·50 days short of Dhaniṣṭhâ, then an adhika month was added and the same consideration would lead to the converse rule (though this is not expressly stated) that if the Sun had reached Dhaniṣṭhâdi 29½ days before Mâgha śukla 1, the lunar calendar should lose an adhika month.

Examples are given above of different periods after which a rectification of the Vedâṇga Jyotisha calendar might have been effected by dropping or adding an adhika month.

The shortest period within which the error could have been rectified was 30 years or 6 yugas. If an adhika month (synodic as well as sidereal) was dropped at the end of 30 years, the above table shows that as the immediate result the length of the synodical month as well as of the sidereal month would have been considerably improved. The length of the solar year would have become 365·2 instead of 366·2 days. By continuing this correction for 5 cycles of 30 years and tabulating progress after 2 more ordinary yugas of 5 years each, we reach a surprising result; viz., an exeligmos of 160 years yielding an almost *perfect synodical month*, an almost *perfect sidereal month* and an almost *perfect sidereal year*. The mean periods of the Vedaṇga Jyotisha, thus adjusted, are so perfect that they could have been observed for 10,000 years without the year going wrong by a single day.

Compared with this exeligmos of 160 years, those for 315 and 540 years are less interesting, but they offer alternative adjustments of the Vedâṇga Jyotisha calendar, and they are exhibited for the purpose of showing that whether the makers of an almanac under the Vedâṇga Jyotisha had, or had not, an idea of an exeligmos, they would have been led, by the very notion of an adhika month, to drop an adhika month once in 30 or once in 35 years, and restore it again when necessary

All the cycles converge to about 1,600 years by Varâhamihira's time, when the Sun at uttarâyaṇa was short of Dhaniṣṭhâ by about 22½ days. This is exactly the difference between B and C under col. IV for 1,600 years. For 10×2·25=22·5 days.

The difference for 5 periods (1,575 years) under col. V between B and C would be 5×4·35=21·75 days.

The difference under col. VI for 3 periods of 540 years each (1,620 years) would be 12·06 days between lunar and tropical years (A and B) and 10·71 days between lunar and sidereal years (A and C). Total 22·77 days.

But under a 540 years exeligmos, as developed in col. VI, the difference due to precession or to sidereal error would be about the same (i.e., some 7 days) for any thing less than a millennium and the falling back of the tropical, with reference to the sidereal or nakshatra year may not have been perceived so early as under an exeligmos of 160 years.

APPENDIX (ii).

LUNI-SOLAR PRECESSION AS APPLIED TO INDIAN ASTRONOMY.

The year of Sūnya ayanāmśa A.D. 533 how determined (page 94, paragraph 229 of text).

The existence of the error adverted to in paragraph 217 of the Text (page 90) furnishes us with a simple means of determining, according to Sūrya Siddhānta, the year of sūnya ayanāmśa, that is, the year when the degree of precession was zero in other words, the point in the heavens at which the commencement of the tropical year coincided with that of the Sūrya Siddhānta sidereal year, or when, according to the expressions used at page 94, paragraph 229, the European and Indian celestial longitudes coincided. We know from the *Nautical Almanac* that in the year A.D. 1909, the apparent vernal equinox at Greenwich occurred on March 21 at 5·46 minutes after 6 A.M. To this time we make the addition of ·2105 of a day in order to arrive at Lanka time, so that the moment of apparent vernal equinox at Lanka was March 21·2143. The beginning of the Indian sidereal year at Lanka was on April 12·9492 according to Table II of *Indian Chronology* (2nd edition), page 258. The difference between the two moments 22·7349 days was the time taken by the Sun to advance along the ecliptic from 0° tropical longitude to 0° Indian sidereal longitude in the year A.D. 1909. We know that this time increases every year at the rate of 365·25876 days (length of Indian sidereal year) *minus* 365·24221 days (length of European tropical year) or ·016556 of a day, roughly 1 ghaṭika per annum. Therefore the difference of 22·7349 days must have accumulated in 22·7349 ÷ ·016556 = 1373·2 years. (Roughly, we might say that 22¾ days or 1365 ghaṭikas correspond to as many lapsed years). Therefore the year of sunyā ayanāmśa according to Sūrya Siddhānta was A.D. 1909 minus 1373 years = A.D. 536. There is a slight error in this method which assumes the same rate of precession in A.D. 536 as in A.D. 1909.

2. We can arrive at an exact result by another method.

The commencement of Sūrya Siddhānta year A.D. 1909–10 (vide Messrs. Sewell and Dikshit's *Indian Calendar* or author's *Indian Chronology*, 2nd edition, Table II, page 258) was on April 12·9492.

3. For Greenwich equivalent of this, we deduct ·2105 day and for interval *after* Greenwich noon we again deduct ·25 day. Therefore Greenwich time corresponding to Lanka time = ·9492 *minus* ·4605 = ·4887 of a day after noon.

4. At noon at Greenwich on April 12 A. D. 1909 Sun's longitude, by Nautical Almanac, was 21°, 56′, 0·5″. Increase of Sun's longitude on 12 April A. D. 1909 was by Nautical Almanac, 147 seconds of a degree per hour.

5. Therefore for ·4887 of a day = 11·7288 hours, increase of Sun's longitude was 11·7288 × 147″ = 1724·1336″.

21°, 56′, 0·5″ = 78960″ 5 of a degree.

Total = 80684″·6336 = 22°, 24′, 44·6″ = 22·4124°.

6. This, by the Nautical Almanac, was the Sun's longitude at the commencement of the Indian sidereal year, 1909–10, viz., on April 12·9492 (Lanka time) when by Sūrya Siddhānta the Sun's true sidereal longitude was exactly 0°. The difference between the two longitudes, 22·4124° must be held to have accumulated by gradual increments since the year of *sūnya ayanāmśa* or the year when the difference between the two longitudes was 0°.

7. Now the difference between the Sun's longitude, according to the Nautical Almanac, and that according to Sūrya Siddhānta arises from two causes:—

(1) The precession properly so called, the rate of which, according to Newcomb, Ball, Young and other authorities, was in A.D. 1909, 50″·2585 per annum, (= ·013961 degree), while its rate for a past year removed by an interval of **t** years from A.D. 1909 was 50″·2585 − **t** × ·000225″ per annum; or (in degrees), ·013961° − **t** × ·000000062° per annum.

(2) The excess of the length of the Indian sidereal year over the correct (modern) sidereal year, which, as stated in paragraph 217, page 90 of *Indian Chronology* (2nd edition), is ·002361 degree per annum.

8. Putting the two causes together, we may devise a useful formula for the accumulated difference Δ for any number of years **t** before A.D. 1909, between the European tropical longitude of the Sun and the Sun's Indian sidereal longitude.

$\Delta = \mathbf{t}$ (·016322° − **t** × ·000000031°). [The 2nd **t** should, strictly speaking, be (**t**+1) but the omission of +1 in this case will not make a sensible difference even for 7 decimal places.]

9. Putting 1,377 years for **t**, Δ = 22·4162 degrees, which is very nearly (vide paragraph 5 supra) the difference between the European tropical and Indian sidereal longitude for the Sun on April 12·9492. We infer that the exact year of Sūnya Ayanāmśa was A.D. 1909 minus 1377 years = A.D. 532.

10. According to the formula in paragraph 8 supra the rate of precession in A.D. 532 =
·016322° − 1377 × ·000000062° = ·016322° − ·000085374° = ·016237° per annum, and for any number of years **t** *before* A.D. 532, Δ or the cumulative effect of precession = **t** [·016237°—(**t** + 1) × ·000000031°]

For 3000 years *before* A D. 532, i.e. in A.D. — 2468 or B.C. 2469
Δ = 3000(·016237° − 3001 × ·000000031°) = 3000 (·016237°—·000093031°)

	— ·000093
	·016144

= 48·432° exactly

For any number of years *after* A.D. 532. $\Delta = \mathbf{t}$ [·016237° + (**t** + 1) × ·000000031°]

From the last expression we deduce the addition to be made to Indian sidereal longitude, in years subsequent to A.D. 532 in order to obtain the European tropical longitude.

						Quantity to be added to Indian sidereal longitude in order to obtain correct (European) tropical longitude.
∴ For A.D.	632 ...	100 years	... Δ	= 100 ×	·016240	1·6240°
	732 ...	200 „	...	200 ×	·016237 + ·000006231 = 200 × ·016243/2	... 3·2486°
	832 ...	300 „	...	300 ×	·016237 + ·000009331 = 300 × ·016246/3	... 4·8738°
	932 ...	400 „	...	400 ×	·016237 + ·000012431 = 400 × ·016249/4	... 6·4997°
	1032 ...	500 „	...	500 ×	·016237 + ·000015531 = 500 × ·016252/5	... 8·1262°
	1132 ...	600 „	...	600 ×	·016237 + ·000018631 = 600 × ·016255/6	... 9·7534°
	1232 ...	700 „	...	700 ×	·016237 + ·000021731 = 700 × ·016258/7	... 11·3811°
	1332 ...	800 „	...	800 ×	·016237 + ·000024831 = 800 × ·016261/8	... 13·0094°
	1432 ...	900 „	...	900 ×	·016237 + ·000027931 = 900 × ·016265	... 14·6385°
	1532 ...	1000 „	...	1000 ×	·016237 + ·000031031 = 1000 × ·016268/0	... 16·2680°
	1632 ...	1100 „	...	1100 ×	·016237 + ·000034131 = 1100 × ·016271/1	... 17·8992°
	1732 ...	1200 „	...	1200 ×	·016237 + ·000037231 = 1200 × ·016274/2	... 19·5290°
	1832 ...	1300 „	...	1300 ×	·016237 + ·000040331 = 1300 × ·016277/3	... 21·1605°
	1932 ...	1400 „	...	1400 ×	·016237 + ·000043431 = 1400 × ·016280/4	... 22·7926°
	2032 ...	1500 „	...	1500 ×	·016237 + ·000046531 = 1500 × ·016283/5	... 24·4252°

APPENDIX (iii).

THE CHRONOLOGY OF EARLY TAMIL LITERATURE.

(Abridged from contributions made to St. Joseph's College Magazine, Trichinopoly.)

வான்கண் விழியா வைகறை யாமத்து
மீன்திகழ் விசும்பின் வெண்மதி நீங்கக்
காரிரு ணின்ற கடைநாட் கங்குல்.

சிலப்பதிகாரம், 10-வது ஊடுகாண்காதை, வரி 1-3.

TRANSLATION.

"In the dark part of the last night called *Vaigarai* (in the fortnight) following the dark fortnight, after the moon had set, and before the sun had risen."

ஆடிக் திங்கட் பேரிருட் பக்கத்
தழல்சேர் குட்டத் தட்டமி ஞான்று
வெள்ளிவாரத் தொள்ளெரி யுண்ண
வுரைசான் மதுரை யோடரசுகே டுறுமெனு
முரையு முண்டே.

சிலப்பதிகாரம், 23-வது கட்டுரைகாதை, வரி 133-137

TRANSLATION.

"It has been foretold that Madura as well as its reigning dynasty must perish when the city is destroyed by fire on Friday, the 8th tithi in the dark fortnight, on a day of the nakshatras Bharani and Krittika in the month of Āḍi (Solar month of Karkaṭaka)."

Silappadhikaram is of prime importance to the chronologist of Tamil literature for the following reasons :—

(1) It is the earliest work in extant Tamil literature, of which the commentary furnishes a clue to the exact date of its composition ;

(2) It is the earliest work in extant Tamil literature which contains a citation of a date in the style now current, *viz.*, by *tithi*, *vāra* and *nakshatra* ; and

(3) For the reason (1) above given, it is an important datum in determining the age of the Third Tamil Sangam,* and thereby the age of many of the Tamil poets known collectively as *Sangam* poets.

2. *Adiyarkunallar's* commentary on the first of the passages given in paragraph 1 supra (line 3 of canto X of *Śilappadhikāram*) may be translated as follows :—

"The month of Chittirai in that year began on a day of '*Svāti*' nakshtra, a third thithi (மூன்றாம், third, is probably a wrong transcription, as will be presently

*Note.—As observed on page 105 of the Text, the earliest Tamil works that have come down to us are the result of very careful compilation and redaction. To the body of scholars, critics and editors to whom we owe that redaction we should now apply the title of a Sangam, i.e., a literary court or academy : but they themselves modestly declined the appellation, and they would rather have us believe that the kind of service they performed had always been normally performed for Tamil literature by a series of three sangams dating from a hoary antiquity and spread over many centuries, hundreds of poets being included in each sangam. (Commentary on *Irayanār-agap-poruḷ*.) This fiction is of no use to us, except as indicating that after the lapse of a very few centuries a Tamil work like *Tolkāppiyam*—vide page 19 of the Text,—possibly belonging only to the sixth century A.D., was apt to be regarded as dating from a hoary antiquity, perhaps because of its being a recension of earlier Tamil grammars of the same name. (*Tolkāppiyam* claims to have been composed in the very first age of the Tamil race, by Tolkāppiyar, one of the twelve disciples of Agastiyar, the mythical and Brahmanic founder of the Tamil language and of Tamil letters.) The reference to any work as a "Sangam" work must be understood to mean that it was one of the works recognized as standard or classical at a period (perhaps 8th to 10th century) when the general recension or redaction of such works was carried out : the dates of the works themselves must be judged independently on the evidence available.

We are able to elicit two dates respectively from *Paripādal* (A.D. 634—vide page 108 of the Text) and *Śilappadhikāram* (A.D. 756,—the present paper) : a third date, or something akin to a date (beginning of 6th century A.D.) has been evolved by the labours of the late Mr. Venkaiya from the Veḷvikkuḍi grant (*Madras Epigraphical Report for* 1907-1908, page 66) for Mudukkuḍumi Peruvaḷudi Palyāgaśālai, the Pāṇḍya king in whose honour we have a few pieces in *Pūranānūru* and who is referred to in *Maduraikkāñchi* (one of the pieces in the *Pattupāttu* anthology) as an ancestor of Neḍunjeḷiyan. From these three dates we may infer that some of the so-called sangam works were composed during a period ranging from the 6th to the 8th century A.D. and to these we may add Jīvāka Chintamani which from chronological as well as other evidence we must place in 9th century A.D. (page 469 *infra*). So far only these four dates have been evolved from early Tamil literature.

We may place Neḍunjeḷiyan of Śilappadhikāram as well as his namesake of Talayālanganam fame and their contemporaries Karikāla (Chola) and Senguṭṭuvan (Chera) in 6th century A.D. These three names of kings figure so often in Sangam literature and there are so many references to their fame and achievements by evidently contemporary poets (Māṅgudi Maruthanār, Paraṇar, Naṛkīṛar, Kaḷāt-talayār, Kaḍiyalūr Urittirankaṇṇanār, Muḍattāmakkaṇṇiyār, etc.), that we are justified in assigning to them a period, as just stated, somewhere in 6th century A.D., on the ground that the kings in question were the centre of the main literary cycle in Sangam literature, just as Arthur and Charlemagne were in Western romance. Senguṭṭuvan with whom we are chiefly

shown, for முன்றும், first); Sunday. On the 28th day of that Chittirai, which was a Saturday, when full moon joined with nakshatra '*Chitrā*', the flag (of Indra) was hoisted; the festival went on for 'four times seven days,' that is for twenty eight days; then the flag was taken down; then on *Monday*, the 28th day of Vaigāśi, the *thirteenth day* of the first lunar fortnight and a day of 'Anurādhā' nakshatra, there was a general bath in the sea, at which the lovers quarrelled; then on the 29th day of Vaigāsi which was a *Nāsa Yoga*, or destructive combination, of Tuesday, with 'Jyeshṭha' nakshatra, on the last night of the waxing moon before it was full, in the portion of the early dawn, called *vaigaṟai*, after the setting of the moon, when it was quite dark [the hero and heroine left the paternal abode in *Kāvirippaṭṭinam*]."

3. At this stage it may be well for us to recall briefly the story of *Śilappadhikāram*, so as to be able to understand the bearing of the dates on the rest of the story.

Kōvalan, the son of a rich merchant of Kāvirippaṭṭinam, the maritime capital of the Cholas, had wasted all his substance, like a prodigal son, on an actress called Mādhavi, deserting his faithful and loving wife Kaṇṇaki. On one occasion, according to their yearly custom, Kōvalan and Mādhavi went to the beach to watch, from their gilded canopy, the sea-bathing festival which brought to a close the 28 days' celebration in honour of Indra. The festival began, we are told, on a Saturday near the full moon at the end of Chittirai (this year, the commentator tells us, the first Saturday of the festival was the 28th of Chittirai) and was kept up for four weeks: on the Sunday following the last Saturday of the feast, the flag was taken down, and on Monday the people went to bathe in the sea. On the present occasion Kōvalan sang to the accompaniment of his lute a song as though he were pining for an absent love. Presently Mādhavi took the lute from him and sang in turn a similar song. Kōvalan was stung to the quick by the actress' behaviour and left her abruptly. In vain she implored him to return, but the commentator tells us that the next day, Tuesday, the 29th day of Vaigāśi, was a bad day for parted friendships, the nakshatra being 'Jyeshṭha' (the proverb செவ்வாயும் கேட்டையும் சேர்ந்தாப்போல் is still current in Tamil). Kōvalan, instead of returning to the actress, returned in the evening of the Monday to his own wife

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concerned in Śilappadhikāram is the hero of the fifth canto of Padiṟṟuppattu and the poet Paraṇar has there sung his praises.

This particular literary cycle appears to have been celebrated by the Tamil poets, as a sort of golden age of Tamil literature, long after the kings themselves and their generation had passed away; and in this assumption will probably be found the real explanation of a good deal that has puzzled critics in regard to *Śilappadhikāram* and *Maṇimēkhalai*. These two poems are centred round the Kōvalan-Kaṇṇaki legend which, from the antiquity of Pattini worship in Ceylon, we may perhaps date from the second or third century A.D. so far as that island is concerned, but which in India is perhaps not older than the seventh century A.D., since it first appears there as a *reminiscence* of the golden age, rather than as an episode falling within the *time-limits* of that age. The legend was probably associated from the first with Madura and the Pāṇḍyans, but we need not wonder that so attractive a legend, with so much of the supernatural woven into it, was linked, as a next step, with the Cholas; it apparently remained for poets of the 7th and 8th centuries A.D. to connect it further with the Chera king Senguṭṭuvan, by depicting Kaṇṇaki, as journeying (somewhat as Orpheus did after the death of Eurydice), for fourteen days without food and drink, due west, to seek her end in the mountains of the Chera kingdom, and as having been there immortalized by Iḷangō-aḍigaḷ, a prince of the Chera line. To the eighth century poet, Senguṭṭuvan of the sixth century A.D. was as legendary a figure as Gajabāhu of the second: and by an anachronism which will not surprise any one who knows how legends shape themselves, he brings Gajabāhu into the court of Senguṭṭuvan; and further, being a dramatist (Śilappadhikāram, teeming as it does, with action songs and choruses by actors and actresses, is throughout dramatic in conception), he also brings in the supposed author Iḷangō-aḍigaḷ, as a sort of Prospero, a character in this own drama addressing the audience in the first person, along with his friend Sātranār,—a wholly unnecessary procedure unless the object was to sustain the identity of a feigned authorship. The fiction of writing a romantic poem under the pen-name of Iḷangō-aḍigaḷ was cleverly conceived, and it was probably thoroughly appreciated by the eighth century Tamil audience as a happy reminiscence of the Senguṭṭuvan cycle and the golden age. Sittalai Sāttanār, in his Maṇimekhalai, does not introduce himself into the legend, as does the author of Śilappadhikāram, and Sāttanār was probably a real historical critic and poet of the seventh century A.D. who used the Senguṭṭuvan cycle and the Kaṇṇaki legend, which evidently had attained full growth before his time; but owing to the utter absence of a literary chronology in Tamil there was nothing unusual in his being associated in the imagination of an eighth century poet with Iḷangō-aḍigaḷ, as the latter's contemporary. The Neḍunjeḻiyan of Śilappadhikāram is believed by some writers to have reigned somewhat earlier than Neḍunjeḻiyan of Talayālanganam fame, since each seems to have a different title in *Puṟanāṉūṟu*, but the former is a somewhat shadowy character who is merely introduced in one canto of the poem in order to be got rid of in the next, and poets who lived in subsequent centuries may well have used the name merely to connect it with the golden age. Karikālan, though better known to us through poems in his honour, is himself but faintly delineated in Maṇimēkhalai, and Senguṭṭuvan is the only name of a king standing out in bold relief in both the poems.

Apart from chronological indications, it is apparent from the *patikam* or poetical summary prefixed to Śilappadhikāram that Maṇimekhalai was written first and Śilappadhikāram afterwards in order to complete it, and while it is apparent that the authors of Śilappadhikāram and Maṇimēkhalai worked upon previously existing materials, we may take it that the main details of the Kaṇṇaki-Kōvalan legend were not familiarly known to the Tamil people for more than about a hundred years before the earlier of these works was written; and that is why, in all probability, it was associated in Tamil literature with the golden age of Chenguṭṭuvan Karikala and the greater Neḍunjeḻiyan, though in Ceylon it had apparently been current for a longer time, and it is not impossible that the legend dates, so far as that island is concerned, from the epoch of Gajabāru (2nd century A.D.).

Kaṇṇaki, who sat moaning and pining for him, and surprised her with an invitation to proceed with him to Madura where he hoped to sell one of her anklets, his last bit of property but a valuable item, and rehabilitate his fortunes by trading on this capital. She readily complied, and they left their home secretly before the dawn of Tuesday and while it was yet quite dark, the moon near full having set; (we are told it was the *fourteenth* tithi of the bright fortnight, and we shall see presently how it was possible for the same day, Monday, to be the 13th tithi in the morning, as stated by the commentator in the passage translated *supra*, and the 14th at night, as mentioned expressly in the text of the poem quoted at the head of this article). Madura, the Pāṇḍya capital, was a long way off, but the pair had good company in the person of Kavunti, an aged female Jain ascetic who entertained them with stories all along the way. Leaving Kāviripaṭṭinam, let us say, early morning on Tuesday, 17th May (it was not yet quite the beginning of Tuesday according to Indian reckoning, because Tuesday's sun had not yet risen), they arrived in Madura on or about the 20th July of the same year. Kōvalan left his wife to be cared for by a shepherdess called Mādhavi and by Kavunti and went into the city to sell the anklet (Tamil, *silambu*). Presently he met a company of goldsmiths, headed by the King's own goldsmith, and he offered them his *silambu*. Now the King's goldsmith had been recently charged with stealing his royal mistress' gold anklet, and he thought this a good opportunity to turn the suspicion against the poor stranger. He therefore ran to the palace and informed the Pāṇḍya that the man who had stolen the queen's anklet had been found: whereupon the Pāṇḍya, although not a tyrant, ordered his soldiers to behead the thief if indeed he was such. Without much ceremony and without any trial, poor Kōvalan's head was cut off by an executioner, whose excuse was that, if the offender was not cut down at once, he might effect his escape by magic. The terrible news reached Kaṇṇaki's ears. She rushed to the spot where her dead husband lay, and after her first wail, took an oath that she would be revenged for the unjust execution of her husband. At the same moment a voice in the air proclaimed that the city was doomed to destruction by fire. Kaṇṇaki ran to the Pāṇḍya and poured forth her wrath in his presence, easily proving her husband's innocence, because the queen's other anklet was filled with pearls, whereas her own other anklet, which she broke in the Pāṇḍya's presence, was filled with diamonds. The Pāṇḍya was so shocked by his single act of injustice that he swooned to death and his wife died immediately after on account of grief: presently, the city took fire simultaneously on all sides, and although the goddess of Madura appeared in person before Kaṇṇaki and pleaded for the city which, she owned, had been already doomed to destruction by an old oracle on "*Friday, krishṇa ashṭami, the day of Bharaṇi and Kṛittikā, in the month of Aḍi*" the wrathful Kaṇṇaki, bent on revenge, would not relent, and pronouning her curse on the city, withdrew from it to the adjoining forest of the Chera king: in this forest on the 14th day, she was seen by the shepherds taking her flight to *swarga* with her husband. The Chera king had a costly temple and statue erected in her honor: the Chola and Pāṇḍya did the same: and so did Gajabāhu, King of Ceylon "girt by the sea."

4. Although the poem itself does not give any other detail as to the time of flight of Kōvalan and Kaṇṇaki from the Chola capital, than that it took place on the last day of a bright fortnight, after the moon had set, when it was quite dark, day not having dawned, the commentator Aḍiyārkunallār (who may have lived in the 11th or 12th century A.D.) confidently supplies other details, viz., that it was the night between Monday and Tuesday, which was a day of "Jyeshṭha" nakshatra and the 29th day of Vaikāśi. He adds that as the festival of Indra began that year on Saturday 28th Chittirai, the 1st Chittirai must have been a Sunday; also that the 1st day of Chittirai was a day of "Svāti" nakshatra. Lastly, it is inferrible from these statements that the month of Chittirai, which usually contains 31 days, had only 30 days in this particular year. The investigation will turn naturally on the answers to the following questions:—

(1) How often between A.D. 1 and A.D. 1900 was the month of Chittira limited to 30 days?

(2) Out of the number of years furnishing an answer to (1), how many years had Chittirai beginning on a Sunday ?

(3) Out of the number of years answering question (2), how many had the thirteenth tithi in a bright fortnight combining with nakshtra "Anurādhā" on a Monday ?

5. The answer to question (3) which is also the solution of our problem, is that between A.D. 1 and A.D. 1900 there was only one year, one month, and one day, satisfying all the conditions, and that was Monday, 17 May, A.D. 756, on which day, as will be seen from Vol. I, Part II, of this Ephemeris, the thirteenth tithi in the bright fortnight of Lunar Jyeshṭha month combined with nakshatra "Anurādhā," the tithi ending at $3\frac{1}{2}$ ghaṭikas after sunrise, and the nakshatra being current all Monday and coming to an end at 8 ghaṭikas after sunrise on Tuesday. *Jyeshṭha* nakshatra, the next after "Anurādhā" was of course current for practically the whole of Tuesday and it came to end an hour after sunrise on Wednesday. On the day when Kaṇṇaki and Kōvalan left their home on their fateful flight, the unlucky *Jyeshṭha*, so the astrologers thought, exerted its influence in conjunction with *Tuesday*. According to Garga, but not according to Brahma Siddhānta nakshatra Jyeshṭha would have begun 12 ghaṭikas earlier, i.e., just as the couple were leaving home.

6. The reader may ask : How came it that, in the general dearth of historical records, this unique date was preserved from the year A.D. 756 when the events are supposed to have occurred, until the year, some centuries later, when the commentator wrote ? The particular astrological combination of Tuesday with nakshatra Jyeshṭha occurs, we may suppose, at least once in every twelve months, but the facts, that (1) the combination occurred in Kōvalan's case on the Tuesday after the conclusion of the Indra festival, which in that particular year came to an end on 28th Vaikāśi, and (2) that Chittirai in the same year began on a Sunday and ended on a Monday, were not unlikely to have been recorded in the earliest commentaries on the poem. To render this possible, we have only to assume that it was a well understood rule that the festival should begin on a Saturday as near as possible both to the full moon and to the 28th day of Chittirai. It is undeniable that a very few curious and unique dates like this are to be found here and there in Tamil literature, howsoever they may have been preserved. One thing is practically certain : it would have required an extraordinary effort to calculate all the details of date for an imaginary occurrence, and our Tamil authors do not appear to have performed such exercises in calculation, if indeed they were capable of executing them. After all, they do not seem to have cared for the dates, *as dates*, because they invariably omit the *years*. They gave the details, partly because the latter were astrologically interesting, and partly because what was not astrological had somehow always formed part of the record. If they cared to invent, they could have invented a date near their own time or taken it out of current panchangas.

7. We have yet to furnish the curious reader with the method by which a problem of this kind is worked out so as to yield a satisfactory solution. First of all, a table like Table II of *Indian Chronology*, 2nd Edn., pp. 200 to 279, is necessary for its solution.

8. Given Table II, how are we to find the years in which Chittirai had only 30 days ? Remembering the rule that Chittirai begins on the day of Mēsha sankrānti, if that sankrānti occurs at or before ·50 of a day, but that otherwise Chittirai begins on the next day (p. 30 of the text) and that Vaikāśi follows the same rule with reference to Ṛishaba sankrānti, we easily deduce the corollary that *Chittirai will have only 30 days if Mēsha sankrānti occurs between ·51 and ·58 of the day.* In addition, in order that the 28th Vaikaśi may be a day of "Anurādhā," or, which is the same thing, in order that the first of Chittirai may be a day of "Svāti," it is necessary that the first new moon in the solar year should occur, according to Table II about 14·75 days after Mēsha sankrānti, not much earlier nor much later.

9. The following are the only years between A.D. 1 and A.D. 1900 in which Chittirai had only 30 days and in which it was possible for Chittirai 1 to be a day of "Svāti" :—

A.D.	Occurrence of Mēsha sankrānti.		Interval in days between Mēsha sankrānti and 1st new moon in solar year.	Remarks.
	Sūr. Sid.	Āry. Sid.		
	March.	*March.*	*Days.*	
203	16·51	16·53	13·78	1st Chittirai was *Thursday.*
211	16·58	16·60	15·23	1st Chittirai was *Sunday* but 28 Vaikāśi was Tuesday, 14th May ; and Jyeshṭha Sukḷa 13 was Monday 13 May.
230	16·50	16·52	15·01	1st Chittirai was *Wednesday* by Ārya, Sid.
466	18·56	18·57	13·72	,, *Saturday* Jyesh. Sukḷa 13 was Sat. 14 May ; while 28 Vaikāśi was 15 May.
485	18·48	18·48	13·50	1st Chittirai was *Monday.*
498	18·55	18·55	14·95	,, *Friday.*
729	20·6166	20·5990	13·68	,, *Monday.*
748	20·53	20·51	13·46	,, *Thursday.*
756	20·6030	20·5833	14·92	,, *Sunday.* (This is the year answering our problem.)
775	21·5194	21·4913	14·69	,, *Wednesday.*
802	21·50	21·48	15·93	,, *Wednesday.*
1011	23·59	23·55	13·40	,, *Saturday.*
1030	23·50	23·46	13·17	,, *Monday* by Ārya. Sid. and Tue. by Sūr. Sid.
1038	20·53	20·57	14·63	1st Chittirai was *Friday.*
1065	23·56	23·52	15·86	,, *Saturday.*
1301	25·6253	25·5642	14·58	By Ārya Siddhānta 1st Chittirai was *Sunday* ; but Jyeshṭha Sukḷa 13 ended on Sunday, May 21·25.
1320	25·54	25·48	14·35	1st Chittirai was *Wednesday.*
1347	26·53	26·49	15·58	,, *Tuesday.*
1583	28·59	28·55	14·30	,, *Friday.*
1591	28·66	28·58	15·76	,, *Monday.*
1602	28·51	28·47	14·07	,, *Sunday* by Ārya Sid. and Monday by Sūrya Sid : but the Ārya Sid. Chittirai had 31 days, not 30 only, as required.
1610	28·58	28·50	15·53	1st Chittirai was *Thursday.*
1846	Ap. 11·65	11·55	14·25	,, *Sunday* and Chittirai had only 30 days ; but Jyeshṭha Sukḷa 13 and "Anurādha" nakshatra ended on Sunday, June 7·71 and Monday June 8·85 respectively so that Monday was not 13th tithi.

10. In this investigation we have to remember that the Ārya Sidhānta sankrāntis which are followed in Southern India are not the same as the Sūrya Siddhānta sankrāntis. The following table shows by what interval the Ārya Siddhānta sankrānti followed or preceded the Sūrya Siddhānta sankrānti. It also shows us that up to A.D. 500 the Sūrya Siddhānta sankrānti was earlier than the Ārya Siddhānta sankrānti and that after A.D. 600 the former occurred later than the latter.

Table showing the interval (fraction of a day) to be added to or deducted from the moment of sankrānti by Sūrya Siddhānta to obtain the corresponding moment by Ārya Siddhānta :—

A.D.	1	...	...	+	·04	A.D.	1000	...	...	−	·04
A.D.	100	...	...	+	·03	A.D.	1100	...	...	−	·04
A.D.	200	...	...	+	·02	A.D.	1200	...	...	−	·05
A.D.	300	...	...	+	·01	A.D.	1300	...	...	−	·06
A.D.	400	...	...	+	·01	A.D.	1400	...	...	−	·07
A.D.	500	...	...	+	·00	A.D.	1500	...	...	−	·08
A.D.	600	...	...	−	·01	A.D.	1600	...	...	−	·08
A.D.	700	...	...	−	·02	A.D.	1700	...	...	−	·09
A.D.	800	...	...	−	·02	A.D.	1800	...	...	−	·10
A.D.	900	...	...	−	·03	A.D.	1900	...	..	−	·11

11. We have also to remember that by Ārya Siddhānta only 30·92 days have to be added to the moment of Mēsha sankrānti in order to obtain the moment of Ṛishabha sankrānti (*vide* Table II of *Indian Chronology*), p. 182, whereas the corresponding addition by Sūrya Siddhānta is 30·93 days. We shall see presently how this fact affects the problem.

12. We see that the test whether Chittirai 1 of any year in the above list was a Sunday is enough to dismiss all the years in which Chittirai had 30 days and coincided with "Svāti" nakshatra, with the exception of 4 years, viz., A.D. 211,

A.D. 756, A.D. 1301 and A.D. 1846. In all the other years 1 Chittirai was not Sunday. In A.D. 1602 the 1st Chittirai was Sunday by Ārya Siddhānta and Monday by Sūrya Siddhānta but the Ārya Siddhānta Chittirai had 31 days, not 30 days only as required. We give this only as a sample of many other cases that we must reject *in limine* as cases in which Mēsha sankrānti did not occur between the limits required, namely between ·51 and ·58 of the day.

13. We see that the years A.D. 211, 756, 1301, 1846 occurred at regular intervals of 545 years. This is important as indicating that years such as the one we are in search of, can occur *only* once in 545 years. (If we had only to deal with solar day of month, vara, tithi and nakshatra, the cycle would be 423, 301, 122, or 101 years: the present cycle is really a compound of two cycles of 423 and 122 years.)

The curious reader who has the patience to make the necessary calculations from "Indian Chronology" will find similar dates in A.D. 211 *minus* 545 years, that is in 335 B.C., and 545 years later than A.D. 1846, i.e., in A.D. 2391.

But there is one year, and one only, throughout the period with which we are concerned which satisfies all our conditions, and that is the year A.D. 756. Only two other dates, A.D. 211 and A.D. 1301, *seem* at first sight to offer possible alternatives, but neither of these will satisfy *all* the conditions arising out of the problem.

14. The objection to A.D. 211 is that in that year, Tuesday, the day of flight, was, by Sūrya Siddhānta and *a fortiori* by Ārya Siddhānta, 28th Vaikāsi only and not 29th Vaikāśi, as the commentator says it was, judging by the duration of the Indra festival. Itis a much more serious objection to A.D. 211 that in that year the 15th tithi ended on Wednesday, at 24 ghaṭikas after sunrise and that in the night between Tuesday and Wednesday which was the last night of the bright fortnight, the moon could have set only 20 minutes before mean sunrise (6 a.m. local time). It could not have been dark then. We know that the flight took place in the last night of the bright fortnight, after the moon had set, and *when it was quite dark*, the night being one *between Monday and Tuesday*. The conditions italicized were not fulfilled in A.D. 211.

15. Nor were they fulfilled in A.D. 1301, although they came nearer to fulfilment in that year than in A.D. 211. In A.D. 1301, *Sunday*, the first of Chittirai, was a day of "Svāti" nakshatra which ended at ·79 the same day: it was bahula 1 (as in A.D. 756), not bahula 3, which, as shown below, is either an error or an erroneous reading in the commentary. In A.D. 1301, *Saturday*, the first day of the Indra festival, 28th Chittirai (= 22 April), a day of "Chitra" nakshatra (·06) and very near full moon; for, full moon tithi commenced at ·73 on that day, ending next day (Sunday) at ·75. In A.D. 1301, again, *Tuesday*, the day of flight, was 29 Vaikāśi (= 23 May), as required, and the night between Monday and Tuesday was the last night in the bright fortnight in which the moon set; (though it must have set only about a quarter of an hour before mean sunrise, and it could not have been dark at 5-45 a.m. in May). On Tuesday, 23 May, A.D. 1301, full moon tithi ended at ·33 and "Jyeshṭha" nakshatra at ·63 of the day. On *Monday* 22 May, A.D. 1301, Sukḷa 14 ended at ·28; and as Sukḷa 13 had ended on *Sunday*, 21 May at ·22, *the commentator's statement that Sukḷa 13 was current on Monday morning was not fulfilled in A.D. 1301.*

16. We are left with a single year (A.D. 756) in the whole range of 2,000 years, which it is possible for us to examine with the help of Table II in *Indian Chronology*; and this year alone satisfies the given conditions. In that year Chittirai began on Sunday, on a day of "Svāti" nakshaṭra, in the sense that on that day nakshatra "Svāti" began at 38 ghaṭikas after sunrise, ending at $35\frac{1}{2}$ ghaṭikas after sunrise the next day. Ordinarily, such a day would be called a day of "Chitrā" nakshatra, but the nakshatra noted by the commentator appears to have been obtained by backward calculation from "Jyeshṭha," the nakshatra, under whose influence, combining with that of Tuesday, Kōvalan and Kaṇṇaki left their home in Kāviripaṭṭinam. In the same way, the tithi of Sunday the first Chittirai is noted as 3rd tithi, whereas it is evident that 57 days later, the tithi

must have been at least 58 tithis forward, i.e., at least *bahula* 1 (supposing Chittirai 1 was *bahula* 3). Now we know that 57 days afterwards, i.e., on the Monday of the sea-bathing, the tithi was the 13th of the bright fortnight, and therefore the tithi on the 1st of the previous Chittirai could not have been earlier than the 15th of the bright fortnight. In other words, between a 3rd tithi in one dark fortnight and a 13th tithi in the bright fortnight of the next but one lunar month the interval cannot be more than 55 days, whereas the actual interval in this case was 57 days. On the 1st day of Chittirai in A.D. 756, full moon ended at 12½ ghaṭikas after sunrise and at the same moment the 1st tithi or *prathamai* of the dark fortnight commenced. On the whole we may conclude rather that the reading மூன்றும் பக்கம் is a mistake for ஒன்றும் பக்கம், "the 1st tithi in the dark fortnight," than that the date "third tithi" was arrived at by retrospective or any other calculation.

17. Lower down, the commentator Adiyarkunallar notes that the 28th day of Chittirai in that year was Saturday, a day of "Chitrā" nakshatra and full moon. We find that in A.D. 756 in the month of Chittirai, the full moon tithi commenced (i.e., the 14th tithi ended) at 41½ ghaṭikas after sunrise on Sunday 18th April, while nakshatra "Chitrā" ended about sunrise on the same day; so that Saturday 17th April A.D. 756, which was the 28th day of Chittirai combined with nakshatra "Chitrā" and the fourteenth tithi or the tithi previous to full moon: the 14th tithi, however, commenced so late on Saturday that, properly speaking, Saturday, the 28th Chittirai, should have been described as the day of the tithi which was current at its sunrise, viz., the 13th tithi. Tamil writers seem occasionally to speak of a day as combining with full moon in the sense that it was very near full moon. In this particular case there was perhaps special justification for this loose manner of writing. A festival occurring in a particular month must to a certain extent be moveable if it is tied not only to a day of the month, but also, and simultaneously, to a week-day, a tithi and a nakshatra. In this case, there is reason to believe that the festival of Indra was so tied. It was apparently proclaimed by the flag being "up" (as stated by the commentator) for five Saturdays and the four intervening seven-day weeks, the first Saturday of the festival being so selected as to be near a full moon and also near the end of the Tamil month of Chittirai. On this supposition, the festival might happen to begin on a Saturday which was six days removed from the full moon, and nevertheless it might be permissible to refer to it as a Saturday fixed *in conjunction with* the full moon.

18. Another instance of a moveable festival in the sense just explained is to be found in the Kāman (Cupid) festival referred to in lines 5, 6 of canto 6 of *Silappadhikāram*, Kadalāḍukatai. Here the commentary refers to the 29th day of Paṅguni (preceding the Chittirai of our story) and says that 29 Paṅguni as well as "Chitrā" nakshatra was "fixed for the end of the festival."

Now we have already seen that the 1st day of Chittirai in the year of our story was itself a day of "Chitrā" nakshatra, and therefore 29 Paṅguni must have been day of "Pūrva Phalgunī" because when Chittirai has only 30 days, the previous month Paṅguni would have 31 days. The commentator could not have been unaware of this fact: and therefore, when he says that the Kāman festival "closed on 29 Paṅguni, a day of Chitrā nakshatra," he must be taken to mean that the festival was so regulated that its end might coincide, *normally* and *as nearly as possible*, with the 29th day of Paṅguni and "Chitrā" nakshatra.

19. We now come to the actual day of departure of Kōvalan and Kannaki from Kāviripaṭṭinam. The commentator says that they left on *Tuesday, 29th Vaikāśi, a day of nakshatra "Jyeshṭha," and the fourteenth tithi in the bright fortnight, after the moon had set, and before sunrise.* One is inclined to suppose from this statement that they left in the night between Tuesday and Wednesday, and before the Wednesday's sun rose; both the text of the poem and astronomical calculation lead us to the conclusion that they left in the night between *Monday* and *Tuesday*, in what we should call in English the small hours of the morning on Tuesday. In ordinary Hindu usage, a day does not begin till sunrise; and the interval from sunrise on Monday to sunrise on Tuesday, including what we should

call the small hours of the morning on Tuesday, would be called Monday. If therefore, we took in its literal and ordinary sense the commentator's statement that the couple left on *Tuesday*, then, knowing that according to the text of the poem they left "before sunrise and after the moon had set," we should be driven to conclude that they left in the night between Tuesday and Wednesday.

20. Canto IX of *Silappadhikāram*, however, leaves us no option but to conclude that, in the evening of the *Monday* when Kōvalan abandoned Mādhavi, the latter sent him a note pressing him to return, that the messenger met Kōvalan near the market, that Kōvalan would not look at the message and spurned it as well as the sender, and that he went in the same evening after nightfall to the private apartments of his wife Kannaki and induced her to leave home with him *early next morning*. Therefore they must have left in the small hours of the morning *before the sun rose on Tuesday*: and the astrological condemnation of the day of their departure as a day of "Jyeshṭha" combining with Tuesday, must be referred to Tuesday, as the day which rose *on the first day of their journey*, rather than to Tuesday as the civil day at the close of which they commenced that journey.

21. Astronomical considerations lead us to the same conclusion. The 13th tithi of the bright fortnight, which coincided with Monday, 28th Vaikāśi, came to an end at $3\frac{1}{2}$ ghaṭikas after sunrise on Monday 17th May, A.D. 756. The 14th tithi began at the same moment and ended at 58 ghaṭikas after sunrise, i.e., at what we should call 5 a.m. on Tuesday. The next tithi, the 15th or full moon, came to end on Tuesday night at $51\frac{1}{2}$ ghaṭikas after sunrise, i.e., at what we should call 3 a.m. on Wednesday. [There was an eclipse at this full moon, but it need not concern us, as neither text nor commentary refers to that phenomenon.]

22. All night between Tuesday and Wednesday, there was a full moon (except for the eclipse), and the express reference in the text to the *brief interval of darkness* between the setting of the moon and the breaking of day on the last tithi of the bright fortnight, would oblige us, even if the 14th tithi had been current on Tuesday, just as the 13th tithi was current on Monday, to conclude that the couple left their home *in the night between Monday and Tuesday*, not in the night between Tuesday and Wednesday.

23. But the story requires (and this also is a very unusual condition, which, together with the other conditions stated above, is satisfied by A.D. 756) a Monday in the *morning* of which the 13th tithi of the bright fortnight was current, and *at the end* of which the 14th tithi was not only current *but had come to an end*; for, if the 14th tithi had been one that came to end by day on Tuesday (as it did in A.D. 211), then the 15th tithi or full moon would have come to end by day on Wednesday and the night between Tuesday and Wednesday would have been the last night of the waxing moon when it would be possible for the moon to set, whereas we understand from the story as unfolded in the text and commentary, that the night between Monday and Tuesday was the *last* of the waxing moon *before* it was full. (The commentator was evidently not unware of the fact that the 14th tithi was *Kshaya*, i.e., that it began and ended between one sunrise and the next; in fact, this is implied in his statement that Monday morning was the 13th tithi and Monday night was the 14th and that the same Monday night was the last night in which the moon set during the bright fortnight.)

24. The apparently meagre details given partly in the text and partly in the commentary of *Silappadhikāram* suffice to lead us *almost* infallibly to the date intended by the author as well as the commentator, viz., A.D. 756. We say "*almost* infallibly," because we have had so far to assume, for the correct solution of the problem, that the Ṛishaba sankrānti in A.D. 756 fell nc^ later than mean sunset, i.e., on March 20·58+30·93= March 51·50 = April 20·50. [The figure ·50 means at ·50 of a day of 24 hours or at 30 ghaṭikās counted from sunrise.]

25. The actual moment of Ṛishabha sankrānti, according to the first Ārya Siddhānta was, however, in A.D. 756 (as will be seen from Tables I and II of *Indian Chronology*), March 20·5833+30·9250 = March 51·5083 = 30 ghaṭikās, 30 palas (= 12 minutes) after mean *sunrise* on 20th April A.D. 756; in other words, the sankrānti was later than mean *sunset* by 30 palas or 12 minutes. Now the rule in

Southern India (p. 4 of the text) is that if sankrānti occurs *before* sunset, the civil month begins *on the same day*, and that otherwise the civil month begins on the next day. Nowadays almanac-makers probably do not consider the actual moment of sunset in working this rule, since they seem always to postpone the beginning of the civil month when the sankrānti falls after 30 ghaṭikās from *mean* local sunrise, i.e., from 6 a.m. (mean local time). It is just possible, however, that in former times they may have considered the sankrānti with reference to the *actual* moment of sunset. If they did this in A.D. 756, then the moment of sunset on the 31st day of the solar year in lat. 11° (Tanjore, which is fairly near the site of Kāvirippaṭṭinam, the ancient Chōla capital), must have occurred 6 minutes or 15 palas after mean sunset 6 p.m. (see art. 80 of *Indian Chronology*). This fact, however, would not by itself account for the non-postponement of the beginning of the civil month because the moment of Ṛishabha sankrānti would still be 6 minutes or 15 palas latter than actual sunset. But in fact we have to apply, not the present rules as to local sunrise and sunset which are based on the *Siddhānta Sirōmaṇi* (A.D. 1150), but the rules which were in force before that work was published by Bhāskarachārya. The effect of those rules is stated in section 62 of Prof. Jacobi's article at page 436 of *Epigraphia Indica*, Volume I, and in accordance with the ancient practice as there stated, we have to add the *chara*, i.e., 130 *asus* or 130 × 4 = 520 seconds = nearly 9 minutes of time, to the moment already obtained (6·6′ p.m.) in order to obtain the actual moment of sunset, as it was probably computed by the almanac maker at Tanjore in the year A.D. 756. With this addition we find that the Ṛishaba sankrānti would in that year have occurred about 3 minutes *before* actual sunset, so that the month Ṛishabha or Vaikāśi would have begun *on the day* of sankrānti, and Chittirai would have been a month with only 30 days, and our problem would be fully satisfied in every respect.

26. Incidentally, the present case shows that, in verifying solar month dates of this period, we should take into consideration, not only the First Ārya Siddhānta and the actual moment of sunset, but also the rule stated by Bhāskarāchārya as to the ancient practice in calculating the local time of sunrise and sunset.

27. **The full date with vara, tithi and nakshatra, in Silappadhikāram.**—Perhaps the most interesting passage in *Silappadhikāram* from a chronologist's point of view is the second one quoted at the head of this paper. "There is a prophecy that in the month of Āḍi, in the dark fortnight, on a day of 'Bharaṇi' and 'Kṛittikā' nakshatras, on the 8th tithi, on a *Friday*, Madura must be destroyed by fire and the royal line of kings come to an end." In the first place, the clear reference to a week-day postpones the date of composition of the poem (in the present state of our knowledge) to a period subsequent, at any rate not anterior, to the 5th century A.D.—vide page 15 of the text. Secondly, the details of tithi, vāra and nakshatra given in this passage enable us to satisfy ourselves whether the date arrived at by us on the strength of earlier passages in the poem and the commentary thereon is borne out, or whether there is still a chance for either of the competing dates A.D. 211 and 1301. Our object in examining dates in A.D. 1301 is to meet a possible view that, supposing this was the epoch of the commentator Aḍiyārkunallār, he may have based his comments on a *contemporary* date similar in all respects to that mentioned in the poem but obtained from a *panchanga* of his own time (*cf.* remarks ont he Ālvār dates, paper vi, p. 487 below).

28. On Friday 23 July A.D. *756, which was the last day of the Tamil month Āḍi, Śrāvaṇa (lunar month) *bahula* 7 (= 7th tithi in the dark fortnight) ended, and the 8th tithi in the dark fortnight began, at 24 ghaṭikās after mean sunrise, i.e., at or about 2-30 p.m.; while nakshatra "Bharaṇi" ended, and nakshatra "Krittikā" began, 6 ghaṭikās after mean sunset, which divides the Indian civil day into equal halves. According to Brahma and Garga, Bharaṇi would have come to end 30 ghaṭikās earlier, i.e., 6 ghaṭikās after sunrise. The nakshatra is indicated in Tamil by the words அழல் சேர் குடடத்து meaning Krittikā nakshatrā. But the commentator on *Silappadhikāram*, called அரும் பதவுரை யாசிரியர் (i.e., "the author of the glossary"), interprets அழல் சேர் குட்டம் by "*Kṛittikā Bharaṇi*," more, we may suppose, out of regard for facts than in view of the literal meaning of the words

* Ephemeris, Vol. I, part II, A.D. 700 to A.D., 799.

The nakshatra of a day is, properly speaking, the nakshatra current at sunrise, which, in this case, was *Bharani*: but Kṛittikā is the nakshatra of fire (Tamil அழல் = fire), thence the prophecy that Madura was destined to be destroyed by fire on a day of "Kṛittikā"; but inasmuch as it was more properly a day of "Bharani," the commentator has thought fit to mention this fact. Madura was probably burnt in the night when "Krittikā" nakshatra was current.

29. So far, the year A.D. 756, for the *res gestæ* of the pœm, tallies exactly with the second as well as the first date which we have had to investigate in order to determine the date of its composition. We have now to see whether A.D. 211 or A.D. 1301 which, we found, would not satisfy the first date would answer at least the second.

30. In A.D. 211 the tithi Śrāvaṇa (lunar month) *bahula saptami* ended, and *ashtami* began, at 47½ ghaṭikās after sunrise, i.e., about 1 a.m. in the night between Friday and Saturday, the Friday being 19th July, the last day of the month of Āḍi. Nakshatra "Bharaṇi" ended about sunrise on Saturday 20th July, the 1st of Āvani. We have here three objections to accepting A.D. 211 as a likely date. In the first place, the tithi was *saptami*, not ashtami at the time when the town began to be ablaze, i.e., in the night between Friday and Saturday; in the second place, the nakshatra was *Bharaṇi* not *Kṛittikā* (அழல் சேர் குட்டம்) at all: and thirdly, the nakshatra Krittikā was current on Saturday, 1st of *Āvani*, and not on Friday in *Āḍi*. We have already seen that A.D. 211 will not suit also the day of departure of Kōvalan and Kaṇṇaki from Kāviripaṭṭiṇam.

31. Nor could the commentator have had in mind A.D. 1301 as a year similar in all respects to the year when Madura was burnt. In A.D. 1301, Śrāvana (lunar month) *bahula saptami* ended, and *ashtami* began, at 35½ ghaṭikās after mean sunrise, i.e., about 8 p.m., while nakshatra "Bharani" ended, and nakshatra "Kṛittikā" began, at 48½ ghaṭikās after mean sunrise, i.e., about 1-30 a.m., in the night between Friday and Saturday. The Friday was 28th July, the last day of Āḍi. Here again Friday 28th July could not have been referred to as "Krittikā" unless the fire happened after 1-30 a.m.

32. The Madras Epigraphists have gradually come to adopt the view presented in this paper, though on quite different grounds. In his *South Indian Inscriptions*, Volume II, part III, page 378 (1895), Dr. E. Hultzsch wrote: "In one of his interesting contributions to the history of ancient Tamiḻ Literature, the Hon'ble P. Kumāraswāmi allots Karikāla to the first century A.D. This opinion is based on the fact that the commentators on the *Silappadhikāram* represent Karikāla as the maternal grandfather of the Chēra king Senguttuvaṉ, a contemporary of Gajabāhu of Ceylon. Mr. Kumāraswāmi identifies the latter with Gajabāhu I who, according to the *Mahāvamso*, reigned from A.D. 113 to A.D. 135. With due respect to Mr. Kumāraswāmi's sagacity, I am not prepared to accept this view, unless the identity of the two Gajabāhus is not only supported by the mere identity of the name, but proved by internal reasons, and until the chronology of the earlier history of Ceylon has been subjected to a critical examination."

33. Twelve years later, at page 66 of his annual report for 1906-07, the Madras Epigraphist, the late Rai Bahadur V. Venkayya, as the result of his examination of the larger and smaller Sinnamanur plates, recorded his opinion that the last Madura College or Academy *(Kaḍaichchangam)* must have come into existence *prior to the middle of the 8th century* A.D. If we are right in concluding that the date of composition of *Silappadhikāram* was somewhere about A.D. 756, then it follows that Rai Bahadur V. Venkayya made a very shrewd guess, for the middle of the 8th century A.D. which witnessed the composition of *Silappadhikāram* became by that very fact the highwater mark of Sangam literature.

34. Notwithstanding the hint thrown out by Dr. Hultzsch in 1895, no one seems to have thought it worth while to probe the alleged identity of Gajabāhu of *Silappadhikāram* with Gajabāhu I of *Mahavamso*: but Dr. Kumāraswāmi's suggestion referred to by Dr. Hultzsch was accepted and most rigidly carried to its logical conclusions by that great Tamil scholar the late Mr. V. Kanagasabhai Pillai in his "*Tamils* 1,800 *years ago*," a work which enjoys a deservedly high reputation

but which, if reprinted, as it ought to be, would have to be re-named "*Tamils* 1200 *years ago*," for the whole work is concerned with events, persons and poems centred in the last Sangam which, we have seen flourished not more than 1200 years ago. Mr. Kanagasabhai Pillai's views, accompanied and enforced by copious illustrations from Sangam literature, have been adopted by almost every subsequent writer on the subject, e.g., Mr. M. S. Purnalingam Pillai, B.A., in his "Primer of Tamil Literature" (1904), Mr. S. Anavaradavinayakam Pillai, M.A., in the Introduction to his Edition of *Nāladi*, Mr. T. A. Ramalinga Chettiyar, B.A., B.L., in his *Age of Pattupāṭṭu*, contributed to the *Tamil Antiquary*, and by most magazine writers in *Sen Tamiḻ* and other periodicals devoted to Tamiḻ literature. All the same, these somewhat overdrawn pictures of the state of civilization in Southern India 1800 years ago will have to be revised in the light of our present day knowledge of epigraphy and chronology, and the scenes of the Madura Sangam will have to be transferred from the first century A.D. to the late 7th and early part of the 8th century A.D., *the period which witnessed, along with the decay of Buddhism, the rise of the Śaivite and Vaishnavite teachers, Tirugnānasambandar, Śankarāchārya, Nammāḻvār, etc.*

35. Incidentally, this readjustment of dates will enable us to understand why Tiruttakkadevar's *Jīvaka Chintāmaṇi* has always been classed in Tamiḻ literary tradition with the other great works of the Sangam period. Those who have adopted the "Gajabāhu" or "2nd century" theory have been obliged to place in their imagination a gulf of some 600 years between the date of composition of *Silappadhikāram* and that of *Jīvaka Chintāmaṇi*, because it is well known that the latter poem was founded on *Mahāpurāṇam*, the first part of which, *Pūrvapurāṇam*, was written by Jina Senachārya, the preceptor of the Rāshtrakūṭa king Amōghavarsha I, who ascended the throne in A.D. 813, while the second part or *Uttarapurāṇam* was the work of Jina Senāchārya's disciple Gunabhadrāchārya.

36. Now it is a fact that the text and commentary of *Jīvaka Chintāmaṇi* contain a date which can be stated with certainty as A.D. 813, the very year of accession of Amoghavarsha I. From the canto of the poem called *Gandaruva Tattayār Ilambakam* and the commentary thereon we extract as many as five identities :—

(*Commentary on stanza No.* 493).

(1) Māśi 1 = Māgha *bahula* 10 ;
(2) Māśi 6 = Māgha amāvāsyā.
(3) Panguni 4 = Phālguna *bahula* 14.
(*Stanza* 590) (4) Simha lagna on Friday, Phālguna *sukla* 3 = nakshatra "Uttra Bhādrapada."
(*Stanza* 621) (5) Thursday in the week following = "Rohinī."

We have to find a single solution to these five equations. We may try the years A.D. 813, A.D. 840, A.D. 935, A.D. 992, A.D. 1114, A.D. 1019, A.D. 1236, which are all years that contain likely elements; viz., in these years the first new moon in the solar year was more or less 14·35 days removed from Mesha sankranti, and Māgha Amāvāsyā fell at a late hour on Tuesday or an early hour on Wednesday; but only A.D. 813 satisfies all the conditions. In that year as we may see from the Ephemeris, Vol. II, Māśi 1 = Māgha, bahula 10 = 20 January A.D. 814 (Friday). Māgha Amāvāsyā fell on 25th January A.D. 814 (Wednesday), which was 6 Māśi. Phalguna *sukla* 3 and nakshatra "Uttara Bhadrapada" ended on Saturday 28th January 814 at 23 and 33 ghatikās, respectively, after sunrise; so that on Friday about sunset, when the *lagna* was *Simha*, the nakshatra current was "Uttara Bhādrapada" and the tithi current was *sukla* 3. In the following week, nakshatra "Rohini" ended at 18½ ghatikās after sunrise on Thursday, 2 February A.D. 814. Lastly Panguni 4 in the same year was 22 February A.D. 814 (Wednesday), on which day Phālguna *bahula* 14 was current throughout the day, ending very shortly after sunrise next day. All this may be verified from Ephemeris, Vol. II.

37. We need not enter upon detailed calculations of other competing years; but any one curious to investigate the subject may satisfy himself that none of

the other years will suit our requirements in all respects, including "Simha" *lagna* which occurred about sunset.

38. It must not be supposed that the author of *Jivaka Chintāmani* wished it to be understood that that romance happened in the year A.D. 813-14. Had such been his sole intent and purpose in the passages cited above, nothing would have been easier for him than to have given us the Kaliyuga or Śaka year, or at least the Cyclic year (Prabhava, Vibhava, etc.) But in the astrological craze which overtook the country at a very early period, it became the fashion to attach an astrological causation to the principal events in the life of every hero or heroine: and of course the full astrological influence exerted by the planets at any time could not be brought out without mentioning the *lagna*, *vara*, *tithi* and *nakshatra*, or at least the *tithi* and *nakshatra*, or *vara* and *nakshatra*. Had some work been in existence during the Sangam period that gave *varas*, *tithis* and *nakshatras* in a sort of ephemeris for several hundreds or thousands of years, nothing would have suited better a Sangam poet who wished to compose or improve a romance and locate it, say, in 3000 B.C.; but in the absence of such a work of reference, the poet was driven to resort to *contemporary panchangas* and we are thus entitled to infer that any particular astrological combination mentioned by a poet and referrible to only one date, must have been obtained by him from a contemporaneous panchanga of that date. The reader may be disposed to doubt whether this explanation can be held to account for the way in which commentators like Adiyarkunallar and Nachinarkiniyar, who composed their commentaries some centuries after the date of composition of the poems commented on fill up, as they do, *lacunæ* in their authors' astrological references. The answer is that commentaries in Southern India generally spring up almost simultaneously with the publication of a poem of any importance; because, although the language of *Silappadhikāram* was far more intelligible to contemporaries than it is to us, yet it was the language of poetry and, in accordance with a practice as old as the *Tolkappium*, it had to be introduced to the world *obstetricante manu*, that is, through the mediation of a commentator. We know that Silappadhikāram had a commentary from the very beginning. The best commentaries no doubt survived in course of time, but in the great commentaries on the great Tamil poems, there seems to have been maintained a continuous unbroken tradition of annotation, dating from the date of each poem, and astrological peculiarities, whether alluded to in the text of a poem or supplied by the ingenuity of an early scholiast, would be just the sort of curious learning that would be handed down scrupulously from commentator to commentator.

39. In line 85 of the 26th Canto of Silappadhikāram it is stated that the Chera King Chenguṭṭuvan, after hearing the story of Kaṇṇaki from the shepherds or Kuravas, visited the "Nīlagiri" mountain for a day with his forces, and then proceeded to the North of India whence he procured stone for the image of Kaṇṇaki, which he solemnly installed in his capital Vanchi. What became of Kaṇṇaki-worship, thus instituted, is only partially known: for students of Tamil literature have searched in vain for any trace on the *continent* of Southern India, of this worship which became popular, and has remained so to this day, in *Ceylon*. The Nilgiri District, therefore, may be said to possess an additional interest for students of *Silappadhikāram*, in that not only is it alluded to by name in the text of the poem, but there still exists in that district a place called *Kaṇṇagimand*, (RIVERS' *Todas*, page 734), which is a *mand* or village belonging to the Toda clan of *Kerāḍr* (itself an echo of *Kerala*), and situated in Meknad, very near the Sisipara route, leading from Malabar into the Nilgiris, one of the probable routes by which, according to Mr. Rivers (page 704), the Todas themselves entered the Nilgiris. At Fair Lawn, which is at no great distance from Kaṇṇagimand, are the ruins of an extensive fort, erected possibly either by Chera Kings or by those who subsequently wrested from them the Nilgiris. For, three centuries later then the time we have been dealing with, we find copious epigraphic evidence of the conquest of the Nilgiris by the Hoysala King Vishnuvardhana (A.D. 1117), whose general "frightened the Todas, offered up the Nilgiri peak to the goddess of victory, and pursuing the Malayalis, made himself master of Kerala"—*Annual Report* of Madras Epigraphist for 1906–07, page 81.

APPENDIX (iv).

THE TRUE AND EXACT DAY OF BUDDHA'S DEATH.

(Reprinted from Indian Antiquary, 1914.)

The object of the subjoined chart is to show that the true date of Buddha's death (Tuesday, 1 April, 478 B.C.), is deducible from the eight week-day dates cited in Bishop Bigandet's *Life of Gaudama* (*Trübner's Oriental Series*). The demonstration is accomplished by selecting 5 out of the many dates which have from time to time been associated with Buddha (see a long list of such dates at p. 165 of Vol. II of Prinsep's *Tables*) and testing the week-days of the several occurrences with reference to each of these dates. The dates selected were:—

(1) 1027 B.C., which is the most frequently occurring among the dates collected by Prinsep;

(2) 901 B.C., corresponding to 980 B.C. for the birth, and to 901 B.C., for the death; which is said to be quoted by Jachrig from Pallas' Mongol Chronology (Prinsep, *loc. cit.*);

(3) 846 B.C., corresponding to 835 B.C., which is said by Prinsep to be the era adopted at Lhassa and founded on an average of 9 dates: 846 B.C. appears to be the date of "Buddha's appearance" alluded to in a well-known Tamil Buddhistic poem of 8th cent. A.D. called "Manimēkhalai;"

(4) 638 B.C., known as the Peguan date; and lastly,

(5) 478 B.C., Cunningham's second date, which, at page 22 of *J. R. A. S.*, 1909, Dr. Fleet admits to be an alternative to his own date, 483 B.C., Kârttika śukla 8.

In selecting supposed dates for trial, I have endeavoured to limit myself to typical ones, i.e., to those which have at least *some* points in their favour. I made an exception in favour of 846 B.C., because, though wide of the mark, it is a curious date and seems to have been adopted by Tamil Buddhists of the 8th century A.D., who appear, according to indications in the Tamil poem Manimēkhalai to have believed that Buddha was born on the 14th day of Rishabha month and on a day of nakshatra Viśākha. The same poem refers to the year 1116 of an era, apparently a Buddha era, having been reached circa A.D. 770. Other dates, which might have been selected, had to be rejected *in limine*, because the week-days were obviously unsuitable. This remark applies to 544 B.C., which would give a *Sunday* (instead of Tuesday) as the day of Buddha's death, as well as to 543 B.C., in which the tithi and nakshatra of Buddha's death concurred on a *Friday*. As

[*Continued on page 474 infra*]

N.B.—The following abbreviations are used in the chart below.

1. *su.* for *śukla*, the bright fortnight of a lunar month. *Bahula paksha* is not referred to even once in the chart.

2. *f. d. t.* and *f. d. n.* These symbols indicate respectively that a *tithi* or a *nakshatra* ended on the *following day* after that cited as the day of the *tithi* or the day of the *nakshatra*. Ordinarily a *tithi* or a *nakshatra* is cited as belonging to the day on which it comes to end but occasionally, it is cited as belonging to the day when it only commences. "*F. d. t.*" and "*f. d. n.*" mean accordingly "*following day's tithi*" and "*following day's nakshatra.*"

3. The ending moments of *tithis* and *nakshatras* are generally given correct to two decimal places of a day. The key to this system will be found in the author's Eye-table. Thus ·20 means 12 *ghatikās* after sunrise.

4. When both *tithi* and *nakshatra* are cited, the ending moment of the *tithi* is given first, and then the ending moment of the *nakshatra*.

5. The English calendar years cited in pairs run from 1 March to 0 March, (*i.e.* the last day of February). Thus 1096-95 B. C. is the period from 1 March 1096 to 28 February 1095. At the epoch we are considering, this period coincided very nearly with an Indian solar sidereal year.

6. The expression "preceded by an adhika month" draws attention to the circumstance that the lunar year under consideration was one of 13, not of 12, months.

Chart to show that the true and exact day of Buddha's death (1 *April* 478 *B C.; Tuesday*)

8. Week-Day dates in Bigandet's Life of Gaudama.	Supposed central date 1027 B.C.	Supposed central date 901 B.C.
1. Kauzda Era given up on Saturday 1st of the moon of Tabaong (= Phālg.). Reference: Vol. I, p. 13.	1093–95 B.C. Phālguṅa (preceded by adhika month) śukḷa 1 was Wed. Jany. 30, 1095 B.C.; ·39. **N.B.**—Abolition of last year of old Kauzda Era.	1050–49 B.C.; Phālguṇa (preceded by *adhika* month). śu. 1 was Sat. Feb. 1. 1049. B.C. Tithi ended at ·21. **N.B.**—Abolition of last year of Kauzda Era. Sat. was prob. Ādi Chandrodaya.
2. Commencement of Eetzana Era—Sunday, 1st of the waxing moon of Tagu (=Chaitra). Vol. I, p. 13. In Vol. II, p. 133, footnote, Bigandet is in obvious error as to this date: see para. (6) of explanatory note.	1095–94 B.C. Chaitra Śukḷa 1= Friday, Mar. 1. ·12, 1095 B.C. **N.B.**—Eetzana Era, year 0, marked by Phālguṇa śukḷa 1 in 1093–95 B.C.	1049–48 B.C.; Chaitra śukḷa 1= Sunday, 1 Mar. 1049 B.C.; ·71. **N.B.**—Monday was prob. Ādi Chandrodaya. 2. Eetzana Era, year 0 marked by Phālguṇa śukḷa 1 in 1049–48 B.C.
3. Birth of Buddha, year 68; Vaiśākha Pūrṇimā; Nakshatra "Viśākha," Friday. Vol I, p. 28; Vol. II, p. 71. Conception having taken place under Nak. "Utt. Ashāḍha" in śrāvana month and birth under "Viśākha," Vaiśākha su. 15 is the implied date of birth.	1027-26 B.C. Friday, April 11; 1027 B. C.; ·34; ·16. **N.B.**—Phālguṇa śukḷa 1 in 1028–27 B.C. marked year 68, expired, of Eetzana Era, (1096 less 1028).	980-79 B.C.; Friday, April 1, 980 B.C.; ·96; f. d. n. ·45. **N.B.**—1. Nak. "Viśākha" was current on Friday and ended on Sat. at ·45. 2. Phālg. śukḷa 1 in 981–80 B.C. marked Eetzana 68 expired (1049 less 981).
4. Buddha leaves Kapilavasru—year 98, Sunday, Āshāḍha Full Moon-Nakshatra "Uttara Āshāḍha"; and enters into solitude next day, Monday. Vol. I, pp. 62–64 (year 97.) Vol. II, p. 72 (year 96.)	999–98 B.C. Tithi ended on Sunday June 29, 999 B.C. at ·31 and Nakshatra had ended on *Sat.* at ·49. This was Śrāvana full-moon. **N.B.**—1, Nak on Sund. was not Uttara Āshāḍha. 2. Phālguṇa śukḷa 1 in 1000–999 B.C. marked year 96, expired, of Eetzana Era (1096 less 1000) and 97 current.	952–51 B.C.; Sunday, 19 June, 952 B.C.; ·88; ·80. **N.B.**—1. This was Āshādha full-moon (preceded by adhika month). 2. Phālg. śukḷa 1 in 953–52 B.C. marked Eetzana 96 expired (1049 less 953) and 97 current.
5. Attainment of perfect wisdom-year—103, Vaiśākha full moon; Viśākha Nakshatra; Wednesday. Vol. I, p. 97 "a little before the break of day." Vol. II, p. 73.	992–91 B.C.; Wednesday, April 14-17, 992 B. C.—pūrnimā; but nakshatra Viśākha had ended on *Tuesday* at ·77 of day. **N.B.**—1. Nak. on Wed. was not Viśākha. 2. Phālguṇa śukḷa 1 in 993-92 B.C. marked year 103 expired of Eetzana Era (1096 less 993). 988–87 B.C. Friday, June 27·55, 988 B.C.; Śrāvaṇa full-moon. **N.B.**—Phālguṇa śukḷa 1 in 989–88 B.C. marked Eetzana year 107 expired (1096 less 989).	945-44 B.C.; Wed. 4 April 945 B.C.; ·61; ·91. **N.B.**—Phālguṇa śukḷa 1 in 946–45 B.C. marked Eetzana year 103 expired (1049 less 946). 941–40 B.C.; Sunday, July 17·90, 941 B.C.; full-moon of Śrāvaṇa (preceded by adhika month.) **N.B.**—Phālguṇa śukḷa 1 in 942–41 B.C. marked Eetzana, 107 expired (1049 less 942).
6. Death of Buddha's father Śuddhodana,—year 107; full moon of Wakaong (=Śrāvaṇa); at sunrise on Saturday. Vol. I, p. 208.		
7. Death of Buddha.—year 148; Vaiśākha full-moon. Nak. "Viśākha" Tuesday: a little before day break. Vol. II, pp. 69, 73.	948–47 B.C.; Tuesday, 7 April, 948 B.C.; ·84; ·97. **N.B.**—Phālguṇa śukḷa 1 in 949–48 B.C. marked Eetzana 148 current or Eetzana 147 expired.	901–00 B.C.; Wed. Mar. 29; 901 B.C.; ·21; ·99. **N.B.**—1. Nak. "Visakha" commenced at ·04 on Wed and was not current on Tuesday. 2. Phālg. śu. 1 in 902–01 B.C. marked Eets. 148 current and 147 expired.
8. The new religions era commences in the year of Buddha's death 148 on Monday, first of the moon of Tabaong (=Phālguṇa). Vol. II, p. 113. The week-day was possibly Sunday which appears in another version recorded by Bigandet; vide footnote to p. 133, Vol. II, and para. (6) of explanatory note.	949–48 B.C.; Phālg. su. 2=Monday; Jan. 26 ·64, 948 B.C. **N.B.**—This was the Phālguṇa before Buddha's death and marked new era, year 0. Phālguṇa śukḷa 1 in 948–47 B.C. marked year 1 expired of new religious era.	902–01 B.C. Phālg. śu. 1 was Sunday, Jany. 16. 901 B C.; ·34; the same day was Ādi Chandrodaya. **N.B.**—This was the Phālguṇa before Buddha's death and marked year 0 of the new religious Era. Phālg. śukḷa 1 in 901–00 B.C. marked year 1 expired of new religious era.

is deducible from the week-day dates cited in Bishop Bigandet's Life of Gaudama.

Supposed central date 846 B.C.	Supposed central date 638 B.C.	Correct central date 478 B.C.
916–15 B.C.; Phālguṇa Śukḷa 1 was Monday, 20 Jany. 915 B.C.; 71. **N.B.**—1. Sat. was not Phālguṇa śukḷa 1 or 2. 2. Abolition of old Kauzda Era.	637–36 B.C.; Phālguṇa śukḷa 2 ended on Sat. Jan 26 ·90 636 B.C. **N.B.**—Abolition of old Kauzda Era.	627–26 B.C.; Phālguṇa śu. 1, (preceded by *adhika* month) ended on Sat. Feb. 4. 626 B.C. at ·39. **N.B.**—Abolition of Kauzda Era.
916–15 B.C.; Chaitra śu. 1=Wed. Feb. 19· 10, 915 B.C. **N.B.**—Sunday was not Ādi Chandrodaya. 2. Eetzana year 0 marked by Phālguṇa śukḷa 1 in B.C. 915–14.	637–36 B.C.; Chaitra śukḷa 1 ended on Sunday Feb. 24 ·57, 636 B.C. **N.B.**—Eetzana Era, year 0 began B.C. on Phālguṇa śu. 1 in 636–35.	626–25 B.C. New moon at the beginning of Chaitra month was Sat. March 4 ·99. 626 B.C. śukḷa 1 ended on Monday, March 6 at ·05 and this was first Chandrōdaya. śukḷa 1 was current throughout Sunday. **N.B.**—Phālguṇa śu. 1 in 626–25 B.C. marks Eetzana year 0 (abt. 25 Jany. 625 B.C.).
846–45 B.C.; Tuesday, April 20; 846 B.C.; 89; ·21. **N.B.**—1 Solar and lunar year began at practically the same moment. The Tuesday was 14 Rishabha; u. 14 ended on Tuesday at 08. (2) Phālguṇa śu. 1 in 847–46 B.C. marked Eetzana 68 (915 less 847).	567–66 B.C.; *Thursday*, March 26, 567 B.C.; ·36; Nak. ended on Sat. at ·17. **N.B.**—1 Friday was not Vaiśākha su 15. 2 Phālguṇa śu. 1 in 568–67 B.C. marked Eetzana year 68 expired (636 less 568).	557–56 B.C.; Friday, 4 Ap. 557 B.C.; 69; f. d. n. ·31. **N.B.**—Phālguṇa śu. 1 in 558–57 B.C. marks Eetzana year 68 expired (626 less 558).
818–17 B.C.; Wed. 9 June, 818 B.C.; ·48; f. d. n. ·23. **N.B.**—This was Āshāḍha full moon but neither tithi nor nak. fell on Sunday. 2. Phālg. śu. 1. in 819–18 B.C. marked Eetzana 96 expired (915 less 819) and 97 current.	539–38. B.C. Śrāvaṇa full moon ended on Monday, 13th July 539 B.C at ·44 and Nak. "Uttara Āshāḍha" had ended at ·58 on Sunday. Āshāḍha full moon was Sat. Jun. 13 ·97. Nak. "Uttara Āshāḍha" in that month was Monday, June 15 ·28. **N.B.**—Phālguṇa śu. 1 in 540–39 B.C. marked Eetzana year 96 expired (636 less 540).	529–28 B.C.; Nija Āshāḍha full Moon and Nakshatra "Uttara Āshāḍha" ended at ·59 and 62 respectively of Sunday 22 June, 529 B.C. **N.B.**—Phālguṇa śu. 1 in 530–29 B.C. marks Eetzana 96 expired (626 less 530) and 97 current.
811–10 B.C.; Sat. 25 Mar.; 811 B.C.; ·19; f. d. n. ·32. **N.B.**—Week day was not, Wednesday. 2. Phālg. śu. 1 in 812–11 B.C. marked Eetzana 103 expired (915 less 812).	532–31 B.C.; *Tuesday*, 29 March 532 B.C.; ·66; f. d. n. 77. **N.B.**—Phālguṇa śu. 1 in 533–32 B.C. marked Eetzana 103 expired, (636 less 533).	522–521 B.C.; Wednesday, 8 April 522 B.C.; ·36; ·74. **N.B.**—Phālguṇa śu. 1 in 523–22 B.C. marks Eetzana 103 expired. (626 less 523).
807–06 B.C., Wed. 7 July 807 B.C. ·17. **N.B.**—Śrāvaṇa full moon, but week-day was not Sat. 2. Phālg. śu. 1 in 808–07 B.C. Eetzana marked 107 expired (915 less 808).	528–27 B.C.; Saturday 11 July, 528 B.C.: 53. **N.B.**—Phālguṇa śu. 1 in 529–28 B.C. marked Eetzana 107 expired (636 less 529).	518–17 B.C.; full moon tithi of Śrāvaṇa commenced on Sat. 20 July, 518 B.C. at ·61 and ended on Sund. 21 July at ·51 of day. Saturday, at sunrise of which Suddhodana died, was loosely called full Moon, although this description was properly applicable to night between Sunday and Monday. **N.B.**—Phālg. śu. 1 in 519–18 B.C. marks Eetzana 107 expired (626 less 519).
787–66 B.C.; Sund. 17 Ap. 767 B.C.; 14-Nak. "Visakha" ended on Sat. at ·74. **N.B.**—Phālg. śu. 1 in 768–67 B.C. marked Eetzana 148 current and 147 expired (915 less 768).	488–87 B.C; *Wednesday*, April 21. ·97; 29. 12th day of Rishabha (Solar month). Note 1. Tuesday was not Vaiś. śu. 15. 2. Phālg. śu. 1 in 489–88 B.C. marked Eetzana 147 expired, 148 current (636 less 489).	478–77 B.C.; "Viśākha" nakshatra commenced at ·87 on Tuesday, 1 Ap. 478 B.C. and ended at ·89 on Wed.; śukla 15 was current all Tuesday and ended on Wednesday about sunrise. **N.B.**—Phālguṇa śu. 1 in 479–78 B.C. marks Eetzana 147 expired, 148 current.
768–67 B.C.; Phālg. (preceded by *adhika* month), śukḷa 1 was Wed. 2 Feb; ·90. **N.B.**—Phālg. śu. 1 in 768–67 B.C. marked year 0 of new religious era and Phālg. su. 1 in 767–66 B.C. marked year 1 expired of new era.	489–88 B.C. Phālguṇa śukḷa 1 (preceded by *adhika* month) ended on Monday Feb. 8, 488 B.C. at ·72. Note.—Phālguṇa śu. 1 in 489 B.C. marked year 0 of new religious era. Year 1 expired was marked by Phālg. śu. 1 in 488–87 B.C.	479–78 B.C. Phālguna śukḷa 2=Monday Jany. 20 ·93, 478 B.C. Phālguṇa śukḷa 1 ended on Sunday 19 Jany. 478 B.C. at ·89 of the day. **N.B.**—Phālguṇa śu. 1 in 479–78 B.C. marks year 0 of new religious era. Year 1 expired is therefore marked by Phālguṇa śu. 1 in 478–77 B.C.=Eetzana 148 expired (626 less 478).

regards 483 B.C., I must say, with reference to Bigandet's week-days, that a more improbable year would be difficult to find, since in that year Vaiśākha pūrṇimā ended on Saturday March 28·90, while Nak. "Viśākha" commenced on Sunday, March 29·02 and came to end on Sunday, March 29·98: in other words, pūrnimā and "Vaiśākha" Nak., did not concur in Vaiśākha month of that year for even one second of time. The year, 484 B.C. is a more probable year, because both Vaiśākha Śu. 15 and "Vaiśākha" Nak. ended in that year on a Tuesday.

An additional reason for selecting (2) 901 B.C., was that if any year was likely to yield week-days identical with those yielded by 478 B.C., it was 901 B.C., on account of a well-known cycle in Indian Chronology by which week-days, tithis and nakshatras generally repeat themselves on the same days of the Indian sidereal year once in 423 years. The year 901 B.C. does yield week-days closely similar to those yielded by 478 B.C., except that it fails at the most important point and brings out the week-day of Buddha's death as Wednesday instead of Tuesday

It will be seen that the only year for Buddha's death which brings out all the week-days correctly is 478 B.C. The number of tests could be multiplied, but we may be fairly certain that the result would always go to confirm 478 B.C.

This being so, it becomes an important question when these week-days were first recorded. Evidently, not during Buddha's life time or shortly after his death, because the week-day, as a detail used for ordinary citation was not known in Europe till the 3rd century A.D. and probably was not known in India till least the 5th century A.D.: indeed, week-day citations are not *commonly* met with in India till the 8th century A.D.—[See on the whole subject of the Indian week-day, Dr. Fleet's valuable article in Oct. issue of *J.R.A.S.* for 1912 pp. 1039–1052].

The Burmese chronicle, translated by Bishop Bigandet, is called *Malla-linkara wouttoo* and was composed about A.D. 1773, but Prof. Rhys Davids testifies to the substantial, even verbal, identity of that chronicle with the Jataka commentary current in Ceylon in 5th century A.D (Prof. Rhys Davids, cited by Mr. Harry C. Norman in *J. R. A. S.* 1908 p. 15). We may, therefore, assume that the week-days in Bigandet's *Life of Gaudama* were calculated[1] retrospectively by some one between the 5th and the 8th century A.D.: but even so, we are led to infer that the true date of Buddha's death, though forgotten, as Dr. Fleet has shown, by 1200 A.D. in Ceylon, had been preserved in the traditions of Buddhists for at least a thousand years after the death of Buddha.

There are certain points worthy of note in the calendar system disclosed by an investigation of these week-days :—

(1) In this calendar there runs throughout an implied distinction between the commencement of an *era*, and the commencement of a *year*. The commencement of eras was shifted from time to time, it was śukla 1 of Chaitra of a particular year under the Eetzana Era, and under the New Religious Era, it was associated with the date of Buddha's death; but what is clear is, that the commencement of the *year* was always the same, i.e., śukla 1 of Tabaong or Phālguna. As an analogous case, we may cite the era of the reformed English calendar which began on 14 Sep. A. D. 1752, though the commencement of the year was always the same as before, the 1st of January.

(2) Secondly, it is apparent, except in the case of the last date on the chart, that the commencement of the lunar month under this ancient calendar, was śukla 1 or pratīpada, as in the present day Indian calendar, and not the first heliacal rising of the moon, as in the Jewish and the Muhummadan calendar.

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[1] At the time when this article was first contributed to the *Indian Antiquary* (1914), there was just a possibility (though it seemed highly improbable), that the author of *Malla-linkara wouttoo* might have himself calculated the weekdays in accordance with the modern Burmese Calendar, which has been in use in Burma since 1738 A.D. In *Ind. Ant.*, Vol xxxix (1910), Sir Alfred Irwin has given the elements of the Burmese calendar from A.D. 638 to A. D. 1752, but adds: "it is not certain what calendars were actually observed in Burma before the year 1100 Burmese Era. = A.D. 1738." After a good deal of study of the relevant documents it has been found impossible to verify whether, according to the modern Burmese calendar, the week-days in Bigandet could be located anywhere else than in the years shown in the last column of my chart. Bigandet is certainly in error in supposing, in footnote to p. 133, Vol. II, and elsewhere, that they can be located with reference to 543 B.C. as the central date.

From the Introduction to Part II of Vol. I of the Ephemeris, it will be seen that Burmese dates before 1738 A.D. were in all probability calculated according to the Sūrya Siddhānta. Examples are given at the end of Section ii of Part II of Vol. I.

In the excepted case I suspect, as observed in paragraph (6) of this note, a wrong reading in Bigandet's English Translation (Vol. II, p. 113) of *Monday* for *Sunday*. On the other hand, the phrase *ādi chandrōdaya dinē* quoted by Dr. Fleet from *Dīpavaṁsa* (*J. R. A. S.* 1909), seems to refer, not necessarily to śukḷa 1, as assumed by him, but to the first day when the crescent was actually visible, and in 242 B.C., as shown below, this was actually śukḷa 2. The ordinary rule (p. 70 of the Text) is, that if śukḷa 1, ends before 42 of a day, (25 ghaṭikās after sunrise) the crescent will rise the same evening and that if śukḷa 1 ends later than ·58 of a day, (35 ghaṭikās after sunrise), the crescent will only appear next day. Between these limits, the day of the first appearance of the crescent is a matter of calculation.

Among other indications going to show that the "first of the moon" or "the first of the waxing moon" in Bishop Bigandet's translation is meant for śukḷa 1 is the following, which is also otherwise interesting. We are told at p. 107 of Vol. I that for 49 days from the attainment of perfect Buddhaship, i. e., from Vaiśākha pūrṇimā, Buddha did not taste food, and that on the 50th day which was the 5th of the moon of Watso he was hungry. [Bigandet's translation in this place "5th *after the full moon of Watso*" is an obvious mistake, since (1) 49 days from Vaiśākha pūrnimā can only take us to śukḷa 5 ($29\frac{1}{2} + 14\frac{1}{2} + 5 = 49$) in Watso or Āshāḍha, and (2) we know from p. 118 of Vol. I that some days after the conclusion of the 49 days fast, Buddha preached a sermon at *exact* full moon and *exact* sunset; this we may identify as Āshāḍha pūrṇimā or Watso full moon—which tithi, in 522 B.C., ended on 6 June at ·40 of the day or a little while before sunset.] The 50th day from Vaiśākha pūrṇimā in 522 B.C. was Wednesday, 27 May = Āshāḍha (or Watso) śukḷa 5, which tithi ended at ·78 of the day. In this case, śukla 1 was first moon rise, but as śukḷa 1 ended on May 24·18, the 5th tithi, if it had been counted from first moon rise, would have been Thursday, May 28, the 51st day, not Wednesday the 50th day counted from Vaiśākha pūrṇimā. It is clear, therefore, that tithis in the text translated by Bigandet were calculated, as now, from new moon and not from the first moon-rise.

(3) On the relative merits of 483 B.C. and 478 B.C. as years of Buddha's death, Dr. Fleet remarked, at p. 22 of *J. R. A. S.* 1909: "For the latter occurrence" (the anointment of Devānaṁpiya Tissa), "the mention of the Āshāḍha nakshatra indicates 247 B.C. or 242 B.C. The choice thus lies between 247+236 B.C. = 483 and 242+236 B.C. = 478 B.C. The earlier year is preferentially supported by a consideration of the circumstances which paved the way to the acquisition of sovereignty by Chandragupta."

It will be seen from the author's "Eye-table" that Nakshatra Pūrva Āshāḍha can coincide with Mārgaśīra śukḷa 1 or śukḷa 2 (on either of which days Devānampiya Tissa was anointed) only in a year in which some month previous to Mārgaśīra was *adhika*. This was the case with the years 247 B.C. and 242 B.C., and Dr. Fleet is, therefore, perfectly right in observing that the choice lies between these years. There is, however, this noteworthy difference between these two years. In 242 B.C., the year of anointment of Devānaṁpiya Tissa, corresponding to 478 B.C. for Buddha's death, Mārgaśīra śukḷa 2 ended on November 14, at $51\frac{1}{2}$ ghaṭikas (in Lanka time), after mean sunrise, and as śukḷa 1 had ended at the corresponding part of the previous day, it is clear, from the rule cited above, that śukḷa 2, Nov. 14, was *ādi chandrōdaya dina* or first moon-rise in the month. Nakshatra Pūrva Āshāḍha was current all through Nov. 14 and came to end at $2\frac{1}{2}$ ghaṭikas after mean sunrise next day. The case was very different in 247 B.C. Since, in that year, Mārgaśīra śukla 1 ended at 9 ghaṭikās after mean sunrise on 6 November, it is evident that, that was *ādi chandrōdaya dina* or the day when the crescent first appeared. Nakshatra Pūrva Āshāḍha, however, commenced only at $50\frac{1}{2}$ *ghaṭikās* after sunrise on the same day, i.e., 2 hours after midnight and was current for only about $9\frac{1}{2}$ *ghaṭikās* at the very end of the day. The anointment could, of course, have been performed in what we should call the small hours of the morning of 7 November, 247 B.C. so as to bring the ceremony within the influence of Pūrva Āshāḍha, but generally speaking, such a day would not be called a day of Pūrva Āshāḍha, whereas 14 Nov. 242 B.C. was strictly a

day when Pūrva Āshāḍha joined with the *ādi chandrōdaya dina* of Mārgaśīra. So far, the calculation of nakshatras appears to point to 242 B.C. rather than to 247 B. C. as the year of anointment of Devānaṁpiya Tissa; and consequentially, to 478 B.C. rather than to 483 B C., as the year of Buddha's death. Dr. Fleet promised to exhibit in a separate article, the process of determining the nakshatras, but to the best of my belief he has not done so yet. The determination is very easy by the tables and method of my *Indian Chronology*.

(4) One of the reasons which led Dr. Fleet to adopt Kārttika śukḷa 8 rather than the traditional Vaiśākha śukḷa 15 as the day of Buddha's death, was that, on the latter assumption, it was not possible to place the two anointments of Devānaṁpiya Tissa 247 B. C. Mārgaśīra śukḷa. 1, and 246 B C., Vaiśākha śukḷa 15, as well as the arrival of Mahindo in Ceylon (B.C. 247 Jyaishṭha śukḷa 15) within the year designated by *Dīpavaṁsa* as "236 years after the death of Buddha," i.e., after 483 B.C., Vaiśākha śukḷa 15. He argued rightly that if each "Vaiśākha śukḷa 15" was the commencement of a new year, the arrival of Mahindo at any rate must belong to a year later than 236 expired of the Buddha era, which would be complete on Vaiśākha śukḷa 15, 247 B.C. Now, if as I have shown above, the ancient Buddhist year always took its departure from śukḷa 1 of Phālguna, then it follows (*a*) that year 236 expired of the religious era would be marked by Phālguna śukḷa 1 in (479 B.C. *less* 236=) 243 B C., and (*b*) that the second and third events, referred to above would both fall within the space designated by a single year, 236 expired, (running from 243 B.C. Phālguna Śukḷa 1 to 242 B.C. Māgha Amāvāsyā). Such being the case, the necessity for adopting Kārttika śukḷa 8 as the day of Buddha's death, in great measure, ceases. Dr. Fleet seems to think that both the anointments of Devānaṁpiya-Tissa should be placed within the 237th year current after the death of Buddha. I do not know if the text of *Dīpavamsa* requires this construction. The text, as quoted by him (*J.R.A.S.* 1909, p. 11) makes two statements, (1) that Devānaṁpiya-Tissa was anointed 236 years after the death of Buddha; (2) that he was twice anointed. It may be that the first anointment was in the 236th year current, towards its close, and the second in the 237th year current.

(5) It follows from an examination of these week-day dates that Buddha's age at the time of his death was 79 complete years, not 80 years, and that supposing he was born in the year 68 of the Eetzana Era, he could be said to have died in the year 148 of that era only in the sense that the year 148 was *varttamāna* or current. See, however, division (8) below of this note.

(6) Bishop Bigandet remarks in a footnote on p. 135 of Vol. II that the Kauzda Era was abolished on a certain Saturday which was the new moon of Tabaong (March) and that the Eetzana Era commenced next day Sunday the first after the same new moon. This of course is not correct, since the old era was abolished with effect from Phālguna (Tabaong) śukḷa 1 (See Vol. I, page 13), while the new era was brought into force with effect from śukḷa 1 of the next month Chaitra (=Tagu).

On the other hand, while referring to the commencement of the New Religious Era (the era of Nirvāṇa), Bigandet has made a mistake just the converse of the above. He says (footnote on the same page 133 of Vol. II): "In the year 148, the first day of the month of Tagoo (April), which fell on a Sunday, was fixed as the beginning of the new computation, emphatically called the era of religion, 543 B.C." We need not concern ourselves with 543 B.C. (As a matter of fact, the first of the new moon of Chaitra or Tagoo in 543 B.C. was Wednesday, not Sunday.) But it will be seen from a comparison of this passage with those at page 13 of Vol. I and page 113 of Vol. II, (1) that where Bigandet affirms Phālguna Su. 1 to have been the beginning of the Kauzda Era, he should have said this of Chaitra su. 1; and (2) that where he affirms Chaitra su. 1 to have been the beginning of the New Religious Era, he should have said this of Phālguna su. 1. So far, there may have been, on his part, a mere mistake of transposition of months, but in saying (in footnote to page 133, Vol. II,) that *Sunday* was the beginning of the new religious era (Era of Buddha's death), he is backed by the calculations exhibited in my chart against the 8th date; and contradicted by his

own statement in the text (page 113 of Vol. II), that the New Religious Era began on a *Monday*. Should my conjecture that *Sunday* was the proper week-day in this case prove justified by a reference to the Burmese manuscript used by Bigandet or to any other original text, then it will follow that "first of the waxing moon" throughout the chronicle translated by Bigandet means "*Śukla pratīpada*," and not the first heliacal rising of the moon.

(7) In one or two instances, details of dates, not explicitly affirmed by Bigandet, have had to be supplied from other circumstances stated by him. Thus, as regards the birth of Buddha, we are told, in the first place (Vol. I, page 28), that he entered the womb of his mother Māyā at a full moon under the constellation "Oottarathan" (= "Uttara Āshādha"). Reference to the Eye-Table appended to my *Indian Chronology* will show that this must have been the Full Moon of Śrāvana. As Buddha was born 9 months later under the constellation "Withaka" ("Viśākha"), (Vol. II, page 71), the birth, as may be seen from the same table, must have taken place at the Vaiśākha full moon, not 6 days after the same full moon (as stated erroneously in the footnote to page 47, Vol. I), when Nakshatra "Vaiśākha" would be an impossibility.

Similarly, when we are told (Vol. I, pages 62—64) that Buddha, preparatory to embracing the life of an ascetic, left Kapilavastu at the full moon of "July" under the constellation "Oottarathan," we may infer that it was the full moon of Āshāḍha month, because elsewhere Bigandet has rendered the Burmese "Watso" (= Āshāḍha month) by "July" (see, for instance, Vol. I, page 200). July is no doubt the English equivalent of Āshāḍa *at the present time*; but it was not so in Buddha's time when the equivalent of Watso or Āshāḍa was May-June. The reader has to be reminded that English months, in 477 B.C. meant, in comparison with Indian months, a time of the sidereal year more than one month in advance of what they now mean. This result is due (1) to the forward movement of the Indian sidereal, as compared with the European tropical, year, and (2) to the dropping of 10 days in the Gregorian Calendar. In support of my statement that the departure from Kapilavastu took place on a *Sunday*, I may refer to Vol. II, page 72, where the next day when he entered into solitude is given as *Monday*.

Lastly, the year when Buddha left his home to lead a hermit's life is given as "Eetzāna 97" in Vol. I, page 62, and as "Eetzāna 96" in Vol. II, page 72. This is not a discrepancy, because we may understand the former to be an *expired*, the latter a current, year. Similarly, the Eetzāna year of Buddha's death, 148, has, I believe, to be understood only as a *current* year, equivalent of *expired* year 147.

(8) I have reserved for the last place the discussion of the important question, whether, admitting the correctness of the dates shown for Buddha's *life*, in the last column of the chart, the date of his *death* may not be 477 B.C., as conjectured, first by Cunningham, and more recently by Prof. Charpentier of Upsala in the July 1914 issue of *Indian Antiquary*. I am bound to say that two sets of considerations are in favour of 477 B.C: in the first place, this date would make him fully 80 years old when he died, which indeed is the commonly received age, attained by Buddha when he passed into *Nirvana*; and in the second place, although the week day of Vaiśākha śu. 15 and Nak. "Viśākha" in 477 B.C. was *Monday* (April 19; ·90; ·44), yet the next day was *Tuesday*, and as he is said to have died "*on* Tuesday, a little before day break", this may mean, though not strictly, "a little before the daybreak *of* Tuesday": that is, in the early morning hours of what we should call Tuesday (in the Indian Calendar, in the last hour or two of Monday).

The real difficulty, however, about 477 B.C. is in harmonizing with this date the statement that the new religious era began on the 1st of the waxing moon of Tabaong (Phālguna) "in the year of Buddha's death," the week-day being either Sunday, as stated in Bigandet's note on page 133 of Vol. II, or Monday, as stated at page 113 of Vol. II of his text. The following are all the relevant Phālgunas:—

Phālguna śukla 1 of 479—78 B.C. fell on Sunday, 19 Jan. 478, B.C. ending at ·88 of day.

" " " 478—77 " fell on a Friday.
" " " 477—76 " " " Wednesday.
" " " 476—75 " " " Sunday (ending at ·78 of day).

We cannot possibly adopt the Phālguna śu. 1 of either 478-77 B.C. or 477-76 B.C. as the commencement of New Religious Era, because in neither case was the week-day Sunday or Monday. We are driven, therefore, to conclude that the 12 months beginning with Phālguna of 479-78 B.C. (19 January 478 B.C. were the 12 months constituting "the year on which Buddha died," i.e., that he died on Vaiśākha śu. 15 of 478 B.C., not on Vaiśākha śu. 15 of 477 B.C.

(9) The Eetzāna Era is no doubt, as observed by Dr. Fleet in *J. R. A. S.* 1912, page 239, "a late invention"; but it is, nevertheless, a true invention,

(*a*) because the dates expressed in that era are, *astronomically*, true dates; and

(*b*) because they include, by implication, one *historically* true date, the year, 478 B.C. of the death of Buddha.

The week-days, coupled with tithis and nakshatras, direct our attention, with almost absolute certainty, to one and *only one* series of years which, thanks to them, can be verified and identified with as much confidence as if they had been recorded in 478 B.C. Knowing, then, from other sources, the historical probability of the central year, 478 B.C. (that it is approximate, according to Dr. Fleet, within 5 years, does not detract much from its historical value), we need not be disturbed by the reflection that this and other surrounding dates must have been laboriously calculated, and for the first time fitted out with the full dress of *vāra*, *tithi* and *nakshatra*, by some astronomer in the 5th, 6th, 7th or a later century A.D. The later the century, the more genuinely do the historian, the chronologist and the critic become interested in the discovery that, for a thousand years, if not more, after Buddha's death, the true *year* of its occurrence was, notwithstanding many contradictory traditions, faithfully preserved somewhere in Buddhistic sacred lore.

APPENDIX (v).

ASTRONOMICAL REFERENCES IN THE MAHĀBHĀRATA.

(Originally delivered as a lecture under the auspices of the Madras Literary Society.)

(1) *Bhīshma Parva, Chapter* 2, *verse* 23.

ālakshé prabhayā hīnām paurnamāsīmcha kārtikīm
Chandro bhūdognivarnaścha padmavarṇe nabhastale.

Even in the night of the Kārtika full moon, the moon, having lost all its splendour, became invisible (or looked like fire), the sky looking like lotus.

(2) *Bhīshma Parva, Chapter* 2, *verse* 32.

rōhinīm pīdayannesha sthito rājan sanaiścharah
vyāvṛittam lakshma somasya bhavishyati mahadbhayam.

O ! King, the planet *Śani* oppresses Rohini. The sign of the deer in the moon has shifted from its position. A great evil is foreboded by all this.

(3) *Bhīshma Parva, Chapter* 3, *verse* 12.

śveto grahastathā chitrām samatikramya tishthati
abhavam hi viśeshena kurūnām tatra paśyati.

Ketu, the white planet, stops on passing beyond the constellation Chitrā. All this forebodes total destruction of the Kurus.

(4) *Bhīshma Parva, Chapter* 3, *verse* 13.

dhūmaketuh mahaghorah pushyam chākramya tishthati
senayoraśivam ghoram karishyati mahāgrahah.

A fearful comet is rising and is distressing Pushya; this great planet will cause great havoc to both armies.

(5) *Bhīshma Parva, Chapter* 3, *verses* 14 *to* 16.

maghāsvangārako vakrah śravaṇecha bṛihaspatih
bhagam nakshatramākramya sūryaputreṇa pīdyate.
śukrah proshṭhapade pūrve samāruhya virochate
uttare tu parikramya sahitah samudīkshyate
śveto grahah prajvalitah sadhūma iva pāvakah
endram tejasvi nakshatram jyeshṭhām ākramya tishṭhati.

Mars is retrograde in Maghā and Bṛihaspati in Śravaṇa. The sun's offspring Śani advances towards Bhaga and afflicts it. The planet Śukra rises towards Pūrva Bhādra, shining brilliantly and looking towards Uttara Bhādra (Dutt's translation). Ketu, blazing like smoky fire, stops and afflicts the effulgent constellation of Indra.

(6) *Bhīshma Parva, Chapter* 3, *verse* 17.

dhruvah prajvalito ghoramapasavyam pravartate
rohinīm pīdayantau tavubhau cha śaśibhāskarau
chitrā svātyantare chaiva dhishthatah parushagrahah.

The constellation Dhruva, fearfully blazing, advances towards the right. Both the sun and the moon distress Rohini. A terrible planet (Rahu ?) has taken up its position between Chitrā and Svāti.

(7) *Bhīshma Parva, Chapter* 3, *verse* 18.

vakrānuvakram kṛitvā cha śravaṇam pāvakaprabhah
brahmarāśim samāvṛitya lohitāngo vyavasthitah.

The red bodied planet, effulgent like fire, passing in a round and round way, stops encircling Śrāvaṇa overridden by Brihaspati.

(8) *Bhīshma Parva, Chapter* 3, *verse* 27.

samvatsarasthāyinau cha grahau prajvalitāvubhau
(viśākhāyāh samīpasthau) bṛihaspatiśanaischarau.

Those two burning planets, Bṛihaspati and Śani, have become fixed for a year.

(9) *Bhīshma Parva, Chapter* 3, *verse* 29.

kṛittikām pidayanstikshnaih nakshatram prithivīpate
abhikshnavātā vāyante dhūmaketumavasthitāh.

O King, Rahu of terrible deeds afflicts Krittikā. Rough winds, foreboding terrible danger, are continually blowing.

(10) *Bhīshma Parva, Chapter* 3, *verse* 32.

chaturdaśīm panchadaśim bhūtapūrvām cha shoḍaśīm
imāmtu nābhijānami amāvāsyām trayodaśīm.

A lunar fortnight has hitherto consisted of fourteen days or fifteen days or sixteen days. But on the 13th day and in the course of the same month two eclipses have taken place.

(11) *Bhīshma Parva, Chapter* 3, *verse* 33.

chandrasūryavubhau grastavekahne hi trayodaśīm
aparvani grahāvetau prajā samkshayayishyatah.

(12) *Udyoga Parva, Chapter* 142, *verse* 18.

saptamāccāpi divasāt amāvāsyā bhavishyati
sangrāmo yujyatām tasyam tāmāhuh sakradevatām.

In 7 days there will be full moon and on that day let us engage in fight, for this is the day favourite to Sakra.

(13) *Udyoga Parva, Chapter* 143, *verse* 8.

prājāpatyam hi nakshatram grahastīkshno mahādyutih
śanaiścharah pīḍayati pīḍayan prānino adhika.

That active planet of great effulgence, śani, troubles the star Prajāpatya, indicating greater trouble to living creatures.

(14) kritvāchāngārako vakram jyeshthāyam madhusūdana
anurādhām prārthayate maitram samgamayanniva.

The planet Angaraka travels retrograde to the constellation Jyeshṭha, O! slayer of Madhu, and goes towards Anurādhā as if seeking its friendship.

(15) nūnam mahadbhayam krishṇa kurūṇām samupasthitam
visesheṇa hi vārshṇēya chitrām pīḍayate grahah.

Surely, O! Krishna, a great calamity for the Kurus is at hand, especially as the planets go against Chitra.

(16) somasya lakshma vyāvṛittam rāhurarkamupaiticha
divaścholkāh patantyetāh sanirghātah sakampanāh.

Rahu comes to the sun which has covered the path of the moon and from the heavens fall down meteors with loud noise and making the earth shake.

* * * * *

The foregoing passages of the Mahābhārata contain the principal astronomical references to be found in that epic, but for the reasons stated in paragraph 246, page 100 of the text, it was not possible to deal with them methodically along with Rāmā's horoscope. The popular impression concerning these references is that the observations in question were made at the time of occurrence of the events described in the Mahābhārata, while the pious hope of even the well-informed portion of readers and hearers of the Mahābhārata is that it may be possible, by means of these references, to determine the date of those events, or at least of the composition of the poem. The remarks made in paragraph 246, page 100 of the text, will have prepared the reader for the conclusion that there is absolutely no scientific or historic warrant for either the popular impression or the pious hope. The astronomical details given in the Mahābhārata differ in one important respect from those in the Rāmāyaṇa. Rāmā's horoscope, even though the framer thereof may not have had in view any particular year, month, or date, *can* be located in time, if we regard it, as we did in section iii of Chapter V of the text, as the subject of a purely astronomical problem; whereas the Mahābhārata references cannot possibly yield a date, because (1) they are mutually repugnant, as has been stated already at page 100 of the text, (2) they are the evident result of interpolation by subsequent writers, and (3) they seem to have been interpolated at different times and in different centuries A.D.

2 The general opinion of modern critics regarding the date of composition of the Mahābhārata is that it must have taken four or five centuries for its composition, viz., from about 300 B.C. to about A.D. 200 and, that the main part of the work may be held to have been composed during this period. But the Mahābhārata, apart from its being a national epic like the Iliad, has also been used by successive generations since the inception of its composition, as a repository, or rather an encyclopædia, of all kinds of knowledge, legal, philosophical and religious. At the same time, the poem suffered the usual fate of literary works conceived and executed in ancient times, in that it has been altered or amplified in minor details by scribes, scholiasts and editors. The astronomical references, consisting as they do of a line or two each, belong to the minor class of interpolations. An estimate of the epoch when some of these interpolations became possible is all that can be attempted. In particular, the omen connected with the 13 days' fortnight (see 10th and 11th passages quoted above), which was commented on in paragraph 29, page 8 of the text, could not have been conceived earlier than the time when the rules for determining the ending moments of tithis, with reference to the sun's and the moon's anomalies and equations, were in full operation and this could not have been earlier than the 6th century A.D., when the writings of Varāhamihira were published. The other interpolations about the positions of planets may be referred to more or less the same epoch.

3. A pertinent question in regard to these interpolations as well as those in the Rāmāyana is, whether the framers of them intended merely to give utterance to certain astrological combinations of planets supposed to produce good fortune or the reverse, or whether they intended to designate a particular epoch of time as corresponding to the planetary positions. There is no ground for supposing the second alternative and we are left with the first as furnishing the sole motive for the interpolations. The *Paripāḍal* horoscope, which we treated in section (ii) of Chapter V of the text as pure chronology, is not in terms astrological and must, therefore, be regarded as quite an exceptional passage in ancient Indian literature. Of course there is nothing to prevent a chronological interpretation being put upon an astrological combination of planets; but a mere astrologer is apt to be reckless or ignorant in regard to the astronomical possibility of the positions stated by him; and if the positions are in fact astronomically impossible, it must be equally impossible to put a chronological interpretation upon his statements. A very good illustration of this observation is afforded by the ancient commentary on the *Paripāḍal* horoscope itself, where the commentor Parmēlaḷagar treats the references as merely an astrological question, ignoring altogether the astronomical possibility of the positions assigned by the poet to Venus and Mercury when the sun was according to the comentator in Simha, whereas the poet, as shown *in extenso* in section (ii) of Chapter V, evidently intended this horoscope as a piece of chronology no less than of astrology.

4. Some of the Mahābhārata references to astronomy afford an even better illustration of reckless astrological statements made without due regard to astronomical possibilities. Certain well-known passages quoted above, especially No. 5 state that Mars was retrograde in Maghā nakshatra at or shortly before the time of the great battle which is supposed by all authorities to have taken place during the month of Mārgaśīra. So far as the author is aware, neither Mr. Vaidya in his "*Mahābhārata, A criticism*," nor the late Mr. Gopala Ayyar, nor any of the other writers on the subject of Mahābhārata chronology, have adverted to the circumstance that it is not astronomically possible for the planet Mars to retrograde in the Maghā nakshatra about the time of Kārtika Amāvāsyā or for some days later. An examination of Mars' retrograde positions in Table V-B will make this clear. The impossibility appears, also to be recognized in Indian works of astronomy, such as the Tamil *Jyotishaganita Śastram* by *Mūnāmpaṇṇai Kṛishna jyoshyar*, paragraph II, page 95. In the same passage of the Mahābhārata it is stated that at the same time Venus was in Pūrva Bhādrapada. This also is an impossible position for Venus when the sun is in Kārtika solar month, or Mārgaśīra lunar month. To get over these difficulties, Mr. Vaidya supposes that the positions of Mars and Venus are to be taken in the sense of vedhas or astrological

cross aspects ; but the present writer has very little doubt but that whoever framed these positions of Mars and Venus in the Mahābhārata thought that they were possible astronomical positions and was ignorant that the reverse was the case.

5 It remains to notice the capital drawback of these astronomical references in the Mahābhārata, viz., that owing to the fact of their having been introduced by different writers and at different times, the same planet is supposed to have occupied a number of different rāśis, for instance, Mars is in one passage going back from Jyeshṭha towards Anurādha ; in another, as already stated, he is retrograde in Maghā. Saturn in the first passage is oppressing Rohiṇi and in the second passage Pūrva Phalguni. Jupiter is in one passage near Viśākha nakshatra and in another in Śravaṇa nakshatra. The only consistent series of references appears to be that in the sizth and eighth passages (Bhīshmaparva 3, verses 17 and 27) which place Jupiter and Saturn near Viśākā and an evil planet, possibly Mars, retrograding between Svāti and Chitrā. The idea seems to be that the three chief planets were retrograding at the same time and were, therefore, exercising a very baneful influence. Mars is not mentioned by name in this passage which only refers to "an evil planet," but since in each of the astronomical passages in the Mahābhārata the three principal planets Mars, Jupiter and Saturn are referred to, we may presume that in the sixth passage which we have selected as being self-consistent, Mars is the planet intended by the description "the evil planet." If we look for a date when all these three planets were retrograding in the positions referred to, we shall probably not find any date in Mārgaśīra month, but about the forty-first day of the Indian solar year, i.e., about Vaiśākha month, we find a certain number of dates, first 3084 B.C. in which on or about the fortieth day, Mars, Jupiter and Saturn occupied positions corresponding to 179 degrees (Chitra), 200 degrees (Viśākhā) and 203 degrees (Viśākhā) of longitude In 1316 B.C. on the fortieth day of the Indian solar year the planets' positions were 190 degrees (Svāti), 215 degrees (Anurādhā) and 206 degrees (Vaiśākhā). Lastly, in 1079 B.C. their positions were 195 degrees (Svāti), 207 degrees (Viśākhā) and 222 degrees (Anurādhā). In all these positions the planets were retrograde. As we have already remarked, there is absolutely no reason to suppose that either these or any other dates were actually contemplated by those responsible for the interpolation of astronomical references in the Mahābhārata.

6. The date first mentioned, 3084 B.C., might seem to be a plausible date because it is only 18th years distant from the first year of Kaliyuga 3102 B.C. But in all probability the Kaliyuga of Mahābhārata was not the same as the Kaliyuga (18th February 3102 B.C.) which was devised by the astronomers of Varāhamihira's time in the fifth or sixth century A.D. and which was the assumed date when all the planets were in mean longitude 0. We have the Sūrya siddhānta as an authority for the statement (Sūrya siddhānta 1—57) that "at the end of the golden age (Tretāyuga) all the planets by their mean motion, excepting, however, their nodes and apsides, are in conjunction in the 0 degree of longitude." What is true of the golden age must be equally true of the beginning of Kaliyuga, because according to the assumptions of Indian astronomy in the various siddhāntas, every planet completes an integral number of revolutions between the beginning of one yuga and the end of the same. Such was the reason why the astronomers of Varāhamihira's time fixed upon the midnight between the 17th and 18th February, 3102 B.C. as the date of 0 Kaliyuga, according to Sūrya-siddhānta, and sun rise on 18th February, 3102 B.C. as 0 Kaliyuga according to the other siddhāntas. Of course these astronomers knew that the Mahābhārata referred to the Kaliyuga as the beginning of a new order of things. But they probably thought that as the date of the Mahābhārata Kaliyuga was left in vacuo, it was open to them to fill it up in any manner they pleased, provided it suited the purposes of astronomical computation. Varāhamihira alone in a well-known passage, which he professes to quote from Garga, appears to have held a definite opinion as to the period of Yudhishtira's reign, but unfortunately the verses in which he states this opinion have been the subject of numerous and divergent interpretations. The apparent meaning is that "Yudhishtira's reign preceded the Śaka era by 2,526 years," that is, that Yudhishtira flourished *circa* A.D. 78 *minus*

2,526 years = 2448 B.C. This figure has been controverted by Mr. Gopala Ayyar, as well as by Mr. Vaidya, but there is one consideration in favour of it. Varāhamihira, or rather his authority, says that the *Sapta Ṛishis* were at that time in Maghā Nakshatra and no body has attempted to discover what this means. The *Sapta Ṛishis* were supposed to spend 100 years in each nakshatra in succession. This is a pure convention, equivalent to a reckoning by centuries, because the ancient astronomers knew very well that the Sapta Ṛishis, i.e., the constellation Ursa Major or Great Bear had no motion of the kind. It is exceedingly probable that the conventional motion of the Sapta Ṛishis through the nakshatras was made to start like the motions of the planets, with the first nakshtra at the date of 0 Kaliyuga. That first nakshatra was in all probability Kṛittikā and not Aśvinī according to the modern usage. The astronomers of Varāhamihira's time knew that Kṛittikā was the first nakshatra in vedic times, and in quoting a nakshatra for the Saptarshis in the reign of Yudhishtira, they probably * conformed to the ancient usage, rather than to their own fixation of Aśvinī as the first nakshatra. If so, Maghā would be the eighth nakshatra, beginning from Kṛittikā ; that is, the entry of the Ṛishis into Maghā nakshatra would mean the beginning of the eighth century reckoned from 0 Kaliyuga, i.e., from 3102 B.C. This takes us to 2402 B.C., which is not very distant from 2448 B.C., the date recorded in Varāhamihira's verse.

" āsan maghāsu munayah śasati prithivīm yudhishthire nripatau shad dvika pānchadvyutah śakakālah tasya rājnaśya."

7. A perusal of the chapter in the Bhishma Parva, in which the majority of the astronomical references occur, will show that that chapter teems with prodigies and portents, all of an extraordinary character, and is conceived in the same spirit as the passages in which the Roman historians Livy, Tacitus and Plutarch have recorded similar prodigies as having been the forerunners of great events in Roman history ; and the astronomical details in the Mahābhārata were presumably added by subsequent writers with no other motive than to add astrological terrors to those already conceived by Vyāsa or whoever first assumed that pen-name.

8. It has generally been considered that there were two eclipses before the great battle, one at the time of new moon, and the other at the time of full moon. Such a succession of eclipses, with no other indication of the probable time, is not, however, sufficient for the verification of any date ; because two eclipses, one solar and the next lunar, succeeding each other within a fortnight, is quite an ordinary phenomenon.

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* *Footnote* —This view becomes all the more probable if Varāhamihira did actually quote the verses in question from an ancient writer, in whose time the practice of reckoning the nakshatras from Kṛittikā, as the first, was still in vogue. We find elsewhere such reminiscences by a later generation of the same tradition regarding the priority of Kṛittikā among the nakshatras. In the Tamil *Manimekhalai* (date probably, seventh or eighth century A.D). the nakshatra in which Buddha was born, Viśākhā, now the 16th among the 27 nakshatras, is referred to as

மீனத்திடைநிலை மீனத்தகவையில்

minattiṭainilai minattakavayil

i.e., "in that nakshatra which is the middle one of the nakshatras" ; in other words, the Tamil author of *Manimekhalai*, who was probably writing in the seventh century A.D., long after the astronomers had begun to regard *Aśvinī* as the first nakshatra, alludes to Buddha's nakshatra of birth, Viśākhā, as the 14th or the middle one among the nakshatras, which it could only be, if the reckoning started with Kṛittikā as the first nakshatra.

APPENDIX (vi).

DATES OF ĀLVĀRS (REVISED).

The Āḷvārs and Āchāryas were Vaishṇavite authors, preachers, reformers, singers, and ascetics who worked either individually or in groups at the epoch of the general Hindu religious revival from seventh century A.D. onwards. The numerous popular accounts of them which pass under the names of *gurupparamparas* (order of succession of religious teachers) *tirumuḍiaḍaivu*, etc., are full of dates with all manner of details of Kaliyuga year, cyclic year, solar month and day, vāra, tithi and nakshatra, which at first sight promise a rich harvest to the chronologist. Accordingly the author was at one time inclined to take these dates seriously, and he published the results of his investigation in a pamphlet entitled "Dates of Āḷvārs," copies of which he will be glad to furnish to any one interested in research. Even in that pamphlet he was obliged to recognize that the Kaliyuga years furnished in the popular accounts down to, and excluding, the date of Rāmānuja, were fictitious and more or less imaginary, but it seemed to him then that the other details of tithi, vāra and nakshatra were capable of being independently calculated; and such independent calculation yielded results which were apparently in agreement with general critical considerations. The dates and the verification, as set out in the pamphlet, are reproduced in columns 3 and 4 of the table at the end of this paper.

2. Subsequent reflection and further experience with South Indian dates have, however, led the author to a very different conclusion: in fact these Āḷvār dates afford a typical illustration of the Will o' the Wisp nature of Indian chronology when one relies too much on the dates presented in a certain class of compositions, and in this category one may include the numerous spurious plates examined and exposed by Dr. Fleet and Professor Kielhorn in the pages of the *Indian Antiquary* and the *Cholapattayams* published by Mr. V. Rangachari of Madras in the *Journal of the Royal Asiatic Society*.

3. The question, when and by whom were these Āḷvār dates first *announced to the world*, is a most important one, upon the answer to which will mainly depend our verdict as to their genuineness. The *Divya Sūricharita* of Garuḍavāhanapaṇḍita is said to be the oldest extant work on the subject, to which the traditional details of Āḷvār dates have been traced, and the author of that work professes to have been a contemporary of Rāmānuja (12th century A.D.). Now, if the earliest Āḷvārs are shown either by a calendrical examination of their dates, or on general critical considerations, to belong to the 7th or the 8th century A.D., then we have to enquire carefully and establish when and by whom those dates were first *recorded* and by what means they were *handed down* to at least Rāmānuja's time (12th century A.D.).

4. Let us consider first what the dates themselves have to tell us, and then what the critics tell us about them. It will be instructive to deal first with a typical date, say, that of Tiruppāṇāḷvār who was an Āḷvār originally belonging to the caste of pāṇar, a low caste of singing mendicants.

5. We are told in the popular account that Tiruppāṇāḷvār was born in Kaliyuga 342 ("Kaliyuga 120" is a variant), i.e., somewhere about 2800 B.C., in "Durmati" year, in Kārttigai solar month, on pūrnimā or full moon day ("bahula 2," which is two days later than pūrnimā is a variant), under nakshatra "Rohini" and on a Wednesday. The late Mr. T. A. Gopinatha Rao, in a manuscript entitled "*A critical account of the Śrīvaishṇavas*," which, we are glad to note, the University of Madras has undertaken to publish, tells us that Tiruppāṇāḷvār must be placed between Tirumangaiāḷvār and Toṇḍaraḍippoḍiāḷvār, the former of whom was a contemporary of Nandivarman Pallavamalla (A.D. 717–779) and of Dantivarman (A.D. 779–830). There is nothing to prevent our extending the search for Tiruppāṇāḷvār's date, if we please, to centuries earlier than the 7th, but we shall first exhaust the more probable period, i.e., that since the 7th century A.D. Between A.D. 700 and A.D. 1201 there are only nine Durmati years (A.D. 721, 781, 841, 901, 961, 1021, 1081, 1141 and 1201) and we may easily satisfy ourselves from the present *Ephemeris* that the only date corresponding to either of the alternatives for

Tiruppānālvār, always excluding the Kaliyuga year from consideration, is A.D. 841, Wednesday 2nd November (=10th day of Kārttigai solar month), on which day Margaśīra śukla 15 or full moon tithi ended at ·90 of the day while Nakshatra "Rohiṇi" began at ·94, ending at 91 next day.

6. There is no date during this period, satisfying the alternative "Durmati Kārttigai solar month, Bahula 2, Rohiṇi, Wednesday" (Wednesday, 25th October, A.D. 1021, satisfies all conditions except Kārttigai month, for it was the 30th day of Tula or Aippaśi month).

7. The next question is, is it probable that the chronicler of Rāmānuja's time (12th century A.D.) had in mind either the A.D. 841 date for Tiruppānālvār, or an earlier date, Wednesday, 15th November, A.D. 601, when Mārgasīra śu. ·15 and "Rohini" ended respectively at ·87 and ·77, or still earlier dates which may, with some trouble, be proved to correspond to the given details? If he had any of these dates in his mind, he need not have written at random, as he evidently did, "Kaliyuga 120 or 342." In dealing with such dates, we no doubt dismiss the Kaliyuga years readily from consideration, because really it was not usual at any time during what we may call the epigraphical period (i.e., the period down to the 14th century A.D. in which epigraphy is almost our only safe guide in chronology) to quote Kaliyuga years; and of course Kaliyuga 342 or 2800 B.C. is too early for citations of week-days or solar months, apart from the impossibility of any such date having been preserved by record or tradition for 4,000 years from 2,800 B.C. to A.D. 1200.

8. Supposing the date of birth of Tiruppānālvār was the earliest we found above, viz., 15 November A.D. 601, and supposing further that the details of vāra, tithi and nakshatra were handed down regularly from that date to that of the 12th century chronicle in which we find them recorded for the first time, then it is possible to assume that the chronicler, not being able to tell in what Durmati the Ālvār was born, fixed on a Durmati 4,020 years before his own time, instead of a Durmati, only 600 years before. If we make this assumption, in which there is nothing intrinsically absurd, then we may make a similar assumption in regard to other Ālvār dates also, and obtain the following dates, as set out in column 3 of the statement below:—

Serial number in table at the end of this paper.	Names of Āḻvārs.	Dates which more or less satisfy critical considerations.	Remarks.
4	Tirumaḻiśai Āḻvār	A.D. 720, 2 January... ...	Mr. Gopinatha Rao assigns this Ālvār to middle of 7th century A.D.
5	Periyāḻvār	A.D. 725, 27 May	According to Mr. Gopinatha Rao, middle 9th century A.D.
6	Āṇḍāḻ	A.D. 776, 25 June	Do. do.
7	Tirumangaiāḻvār	A.D. 776, 31 October ...	Mr. Gopinatha Rao accepts this.
8	Kulaśēkharāḻvar	A.D. 767, 12 February ...	First-half of 9th century according to Mr. Gopinatha Rao.
9	Toṇḍaradippoḍiāḻvār	A.D. 787, 11 December ...	Mr. Gopinatha Rao accepts this.
10	Madhurakkaviāḻvār	A.D. 797, 14 April	
11	Nammāḻvār	A.D. 798, 4 May	Do.
12	Nāthamunigaḻ	A.D. 823, 27 May	Last quarter of 9th and major portion of 10th century A.D. (Gopinatha Rao).
13	Uiyakkoṇḍar	A.D. 828, 17 April, or A.D. 848, 23 March.	
14	Tiruppāṇāḻvār	A.D. 601, 15 November, A.D. 841, 2 November.	Most critics would prefer the date in A.D. 601 because the Āḻvārs preceded Āchāryas like Nāthamuni and Uiyakkoṇḍār.
15	Āḻavandar	A.D. 918, 26 June (born). A.D. 1038, 28 April (died).	
16	Maṇakkālnambi	A.D. 929, 25 February (but this was 22 days short of Virodhi Samvat).	Not a single date in any Virodhi Samvat from A.D. 749 to A.D. 1409 suits the given details: the first suitable date is A.D. 1470, 14 February.
17	Periyanambi	A.D. 937, 11 October ...	Either Tithi śu. 5 given in the traditional account is an error for śu. 12 or Mārgaḻi is an error for Tula.
18	Rāmānuja	A.D. 1017, 4 April (born.). A.D. 1137–8 (died).	

9. We seem to have got hold of a number of useful dates which also are more or less likely to satisfy the critics; but somehow we feel that we are not so sure of our ground with the early Āḷvārs as we are with Rāmānuja and *his* immediate predecessors; this is because between Rāmānuja and the Āchāryas who immediately preceded him there are a number of chronological links, whereas our date for Tiruppānāḷvār for instance depends on a single chronological clue, the *Ephemeris*. Change any of the details of such a date, e.g., cyclic year, vāra, tithi, or nakshatra, and we may have to shift the date itself by hundreds of years. We become diffident as we reflect that for the details of so many dates of the 7th and subsequent centuries we depend, not upon contemporary records, but upon records which could not have come into existence much before the 12th century A.D. Our confidence in the complete accuracy of these details which we have relied on so far, is not strengthened, but rather the reverse, when we find, as we shall do presently, that for the Āchāryas subsequent to Rāmānuja certain minor calendrical details in the traditional account are positively untrustworthy although we are able to supplement them by information obtained from other sources. For instance

Serial number.	Names of Āchāryas.	Calendrical details according to popular account.	Defect, error or irregularity.
19	Mudaliyāṇḍan	The calendrical details, are Srimukha, Chittirai 18, śu. 6, "Punarvasu," Monday or "Prabhava; Chittirai 25, śu. 10, Punarvasu, Monday.	This exact combination does not occur even once between A.D. 700 and A.D. 2000.
20	Kurattāḷvār	Kaliyuga 4131 Pramodhūta, Tai. śu. 5; "Hasta" Sunday. A.D. 1090-91; 12 Jan. A.D. 1091 or A.D. 1030-31, 16 Jan. A.D. 1031.	A combination of śu. 5 with "Hasta" in Tai month is an impossibility. We are obliged to substitute "ba. 5."
21	Anandāḷvār	Kaliyuga 4154, Vijaya; Chittirai, 10 "śu. 15"; "Chitrā," Friday A.D. 1048, 1 April.	If we follow up the other details, then "Vijaya" and K.Y. 4154 must be an error for "Sarvadhāri," and K.Y. 4149.
22-23	Peria Bhattar, Srirāmpillai, twin sons of Kurattāḷvār.	Kaliyuga 4175; Ānanda; Vaigāśi; śu. 15, "Anurādha" Wednesday, Variant "Subhakrit" A.D. 1063 (=K.Y. 4164, Sabhakrit), Wednesday 14 May.	The correct details are found in a year corresponding, not to Ānanda, or Subhakrit, or K.Y. 4175, but to K.Y. 4164 = Sobhakrit.
24	Maṇavāḷamāmunigaḷ ...	Kaliyuga 4471, Sādharaṇa; Aiypasi, "Mulā," Friday, Thursday, 24 Oct. A.D. 1370.	The correct week-day is Thursday not Friday. We should not have been able to correct the error if we had not been sure of the Kaliyuga and cyclic years, 4471 and Sādharaṇa.

10. The above are not cases purposely picked out from a number, but simply the records of the six immediate followers of Rāmānuja. Everyone of these recorded dates is, as we have just seen, erroneous: and we are able to rectify them merely because we are confident of the accuracy of certain other details included in the same records. In the records of the earlier Āḷvārs we have no such means of correcting errors. Proceeding from the known to the unknown, we reason that we are not justified in pinning our faith absolutely on the details of dates (even after excluding the Kaliyuga years from consideration) which are contained in the popular accounts.

11. The last and most difficult question still remains to be answered, how were the details of birth of so many persons who were all alike *sanyasins*, and who were drawn from different stations in life, *originally ascertained*? The case of the early Āḷvārs is different from that of Rāmānuja, a voluminous writer and a famous teacher and preacher, who died early in the twelfth century A.D., full of years and full of honour, and upon whose death his admirers and followers would be eager to gather up every scrap of information about his early career, in order to satisfy the natural curiosity of their posterity. We may, if we please, assume for the sake of argument that each of the early Āḷvārs may have been as famous in his day as Rāmānuja was in his; but the same stimulus of curiosity could not have existed in the early days of Vaishṇavism as it did in the twelfth century A.D. and supposing it did exist, it could not have been as easy to satisfy it in the case of a dozen different Āḷvārs as it turned out to be in the unique case of Rāmānuja.

The demand for such information would generally be in proportion to the means available for supplying it; and in early times there would be no means at all of supplying information as to the exact day of even a *great* man's birth. If we take the cases of the founders of the world's three greatest religions, we know that the followers of Buddha, Christ and Mahomet were alike actuated by an intense desire to hand down to posterity the essential details of their masters' lives: and as a result of this desire, we have more or less exact information as to the day of death of each of the three founders: but in the case of all three, information as to the days of their birth is utterly lacking (see as to Christ, page 127 supra, paragraph 310, and as to Buddha, paper No. iv on the subject in the present appendix: the day of Muhammad's death was the 7th June, A.D. 632; it is only known that he was either 63 or 65 years of age at the time of his death). In India, at the present time, and for some hundreds of years past every Hindu has, or has had, a recorded horoscope; but this was not the case even in India in the sixth or seventh century A.D., since no horoscope of any person of that time has come down to us, with the possible exception of Śankara's horoscope (see page 122, paragraph 301 supra), but such an exception only proves the general rule. In ancient Rome where every great man found a biographer, the year of birth was usually stated as So-and-So's consulship: but not till we reach the age of parish registers and baptismal records were means forthcoming in Europe even for an industrious biographer to trace the day when a celebrated person first saw the light. In our own day, only royal personages, whose coming into the world is announced through Reuter, have a chance of having the hour of their birth recorded; while it is a privilege of being born in Bharatavarsha (India) that the poorest person there nowadays may claim to have been born so many hours, minutes and seconds after sunrise on a particular day. In the case of the Ālvārs, apart from the notoriously humble origin of some of them, there were special difficulties in the way of any one wishing to ascertain the day of their birth. They were sanyāśins and a sanyāśin cannot be questioned as to his pūrvāśrama or the time before he assumed the religious garb, as he is supposed not to remember that time any more than his previous birth. The veil of obscurity surrounding the days of birth of these Āḷvārs was, therefore, we may take it, absolutely impenetrable, and we may extend this observation to Rāmānuja himself in whose case the utmost we can concede is that some biographer of his, probably in the twelfth century A.D. may have retrospectively calculated the day of his birth and in so doing allotted to him 120 years as his span of life, the same having been done in the case of Āḷavandār; (other Āḷvārs who had lived in more spacious times had had 200 and 300 years allotted to them by biographers who were not worried with historical considerations such as in the case of Rāmānuja clogged the flight of the imagination).

12. We reach a conclusion which may be seriously disappointing to the majority of readers, but which is the only one that historical criticism will warrant; viz., that when the biography of Rāmānuja began to be composed, public curiosity was equally exercised about the lives of the Ālvārs and the early Āchāryas, and that then and not till then, i.e., not till the twelfth or thirteenth century A.D. were such meagre details as tradition had handed down amplified for the first time into calendrical shape. The aim of the Indian biographer would in such cases be to fill out the calendrical details so as to attain at least a passable standard of verisimilitude. The combination of a tithi, nakshatra and week-day cannot be invented offhand, like "12th February 1895"; and the biographers of the Ālvārs naturally thought that any details taken from contemporary panchāngas would suit previous times also. If this was the method adopted, we should find all the details of the Āḷvār dates in one subsequent period of 60 to 100 years, the period for which panchāngas would ordinarily be available at any time. How far this hypothesis is tenable in the case of the Āḷvars and the earlier Āchāryas, the reader may judge for himself by examining the contents of column 5 of the table at the end of this paper, which is also partially reproduced below, and which gives the years, in the period between A.D. 1130 and A.D. 1260, when the Āḷvār details were repeated, according to the *Ephemeris*. We have, first of all, the year A.D. 1139 the very next year after Rāmānuja's death, when people's minds would naturally be set

thinking about the dates of the early Ālvārs as well; in the *Ephemeris* for this very year A.D. 1139 will be found the somewhat crude details adopted in the traditional account for the first three Āḷvārs, Poygaiāḷvār, Pūdatāḷvār and Peyāḷvār; namely,

Aippāsi śu. 8, "Śravana," Tuesday for the first Āḷvār (3 Oct. 1139)
Do. 9, "Dhanishṭha," Wednesday for the second Āḷvār (4 Oct. 1139)
Do. 10, "Satabhishaj," Thursday for the third Āḷvār (5 Oct. 1139)
all in the cyclic year Siddhārthi (= A.D. 1139-40)

Tirumaḷisaiāḷvār: the date, 4 January A.D. 1200, suits the traditional details better than the eighth century date 2 January A.D. 720; because the former is ba. 1, as required, and the latter is only ba. 2.

Periyāḷvār and Āṇḍāḷ: The date, A.D. 1256, 27 June, suits Āṇḍāḷ better than the eighth century date, A.D. 776, 25 June, because the former was Śu. 4 as stated in the popular account whereas the latter was Śu. 5.

Kulaśēkhara Āḷvār: The date, A.D. 1208, 31 January, is in Prabhava samvat, as stated in the popular account, whereas the eighth century date, 12 February A.D. 767, was in Parābhava samvat.

Madhurakkavi: There are two dates, A.D. 1217, 21 April, and A.D. 1220, 17 April, corresponding to the two samvats, Īśvara and Vikrama appearing as variants in the traditional account, whereas only the Īśvara date can be found in the eighth century 14 April A.D. 797.

Nummāḷvār: Just as there is a date in Bahudhānya A.D. 798, 4 May, there is another in Bahudhānya, A..D 1218, May.

Mudaḷiyāṇḍān: The date, Monday 9 April A.D. 1033 (= Śrīmukha) ignores śu. 6 and "Punarvasu," whereas these details could very well have been suggested in A.D. 1266 (= Kshaya) when śu. 6 and "Punarvasu" joined on Monday 12 April which was 18 Chittirai. Apparently Śrīmukha was the cyclic year in which Mudaliyāṇḍān was born, but the details śu. 6 and Punarvasu were suggested to the biographer by a panchānga of the year A.D. 1266.

Serial No. (1)	Names of Ālvārs. (2)	Details of date given in the popular accoun's. (3)	Details of date verified from the Ephemeries so as to suit the conclusions arrived at by historical critics. (4)	Details of date furnished by the Ephemeris in confirmation of the hypothesis that the details were copied from contemporary panchāngas in 12 or 13th cent. A.D. (5)	Remarks. (6)
1	Poygaiāḷvār ...	Dvāpara 862,900, Siddārthi, Aippasi, śu. 8, "Śravaṇa," Tuesday.	Siddārthi = A.D. 719. The choice of three successive titbis and week-days indicates the fictitious character of these dates of birth.	In A.D. 1139, śu. 8, 9 and 10 in Aippasi month fell respectively on Wednesday, Thursday and Friday. In A.D. 1139 (= Siddārthi), śu. 8, 9 and 10, and nakshatras Śravana, Dhanishtha and Satabhishaj fell on Tuesday, Wednesday and Thursday, as required in column (2). Curiously A.D. 1139 was the year after Rāmānuja's death. See No. 18 below.	Mr. Gopinatha Rao suggests middle of 7th cent. A.D.
2	Pudattaḷvār ...	Dvāpara 862,900, Siddārthi, Aippasi, śu. 9, "Dhan." Wednesday.			
3	Peyāḷvār ...	Dvāpara 862,900, Siddārthi, Aippasi, śu. 10, "Satab," Thursday.			
4	Tirumaḷisai Āḷvar.	Dvāpara 862,900, Siddārthi, Tai, ba. 1, "Magha," Tuesday. Variants: "ba. 10" and "Thursday."	Tuesday, 2nd January A.D. 720, was ba. 2 (not ba. 1) and nakshatra "Magha."	A.D. 1200, Tuesday, 4th, January; nakshatra "Magha" began on Tuesday at 26 and ba. 1 ended at 27.	Mr. Gopinatha Rao assigns this Āḷvār also to middle of 7th cent. A.D.

Serial No.	Names of Āḻvārs.	Details of date given in the popular accounts.	Details of date verified from the Ephemeris so as to suit the conclusions arrived at by historical critics.	Details of date furnished by the Ephemeris in confirmation of the hypothesis that the details were copied from contemporary panchāngas in 12th or 13th cent. A.D.	Remarks.
(1)	(2)	(3)	(4)	(5)	(6)
5	Periyāḻvār ...	Kaliyuga 46, "Krōdhana" Āṇi; śu. 11, Svāti," Sunday. Additional information is supplied in another manuscript that he lived 67 years.	Sunday, 27th May, A.D. 725 (=Krōdhana); ·38; ·66.	A.D. 1205, Sunday, 29th May (=4 Āni); *f.d.t.* ·47; *f.d.n.* ·76.	According to Mr. Gopinatha Rao Periyāḻvār and Āṇḍāḷ were contemporaries of a certain Māravarman Śrivallabha, mid. 9th cent. A.D.
6	Āṇḍāḷ ...	Kaluyuga 97, "Nala," Āḍi; śu. 4 "Pur Phalg.," Tuesday.	A.D. 776, Tuesday, 25th June; *f.d.t.* ·04; ·47. Though 5th tithi ended at ·04 on Wednesday it was not the 4th that was current on Tuesday, but the 5th which had begun on Monday.	A.D. 1256; Tuesday, 27th June (= 1 Āḍi); ·74; *f.d.n.* ·34.	
7	Tirumaṅgai Āḻvār.	Kaliyuga 397, Nala, Kārttigai, śu. 15, "Kṛittikā," Thursday.	A.D. 776, Thursday, 31st Oct.; ·62; ·75.	A.D. 1196, Thursday, 7th November; ·73; ·61.	
8	Kulaśēkhara Āḻvār	Kaliyuga 27, Māśi, śu. 12, "Punarvasu," Thursday, Prabhava. Variant: "śu. 10"	A.D. 767 (=Parābhava), Thursday, 12th February; *f.d.t.* 27; *f.d.n.*	A.D. 1207-08 (=Prabhava), Thursday, 31st January 1208 (=Māśi) ·54; 72.	
9	Toṇḍaraḍypodi Āḻvār, Kaliyuga 208.	Kaliyuga 208, Prabhava, Mārgaḻi, ba. 14, "Jyeshtha," Tuesday.	A.D. 787–88 (=Prabhava); On Tuesday, "Dec. A.D. 787, Mārgaśira, ba. 13 as well as nakshatra Jyeshtha" commenced, ending next day at ·34 and ·68 respectively.	A.D. 1207-08 (=Prabhava), Tuesday, 18th December 1207; *f.d.t.* ·90; *f.d.n.* ·07.	According to Mr. Gopinatha Rao, this Āḻvār and Tirumaṅgai Āḻvār were co-eval, Tiruppaṇāḻvār being between them: Tirumangai was contemporary with Nandivarman Pallavamalla, A.D. 717—779, and of Dantivarman, A.D. 779—830.
10	Madhurakkavi Āḻvār.	Dvāpara 863, 878; "Īśvara," Chittirai, su. "Chitra," Friday. Variants: śu. 10 and śu. 14, "Vikrama."	A.D. 797 (=Īśvara), Friday, 14th April; śu. 14 *f.d.t.* ·03; Chitrā ended at ·62.	A.D. 1217 (=Īśvara), Friday, 12 Ap., śu. 14, *f.d.t.* ·22; Chitra ended on Friday at ·57. A.D. 1220 (=Vikrama); Friday, 17th April, śu. 14; *f.d.t.* ·34; ·93.	
11	Nammāḻvār ...	Pramāthi, Vaigāśi 12; śu. 15; "Viśākha," Friday; 43rd day of Kaliyuga. Variant: Bahudhānya, Vaigāśi month, Vasanta-ritu, pourṇami.	A.D. 798, Friday, 4th May.	A.D. 1218–19; Friday 11th May (=11 Vaigāśi); *f.d.t.* ·07; ·11.	Mr. Gopinatha Rao notes that that the date A.D. 798 for Nammāḻvār falls in the reign of Parāntaka Pāṇḍya and before A.D. 908 the date of Chōḻa Āditya.
12	Nāthamunigaḻ ...	Kaliyuga 3224, 3324, etc., Sobhakrit or Subhakrit, Āni, śu. 15, "Anurādha," Wednesday. Variant: Āni 1.	A.D. 823 (= Sobhakrit); Wednesday, 27th May (=5 Āni); *f.d.t.* ·55; ·06.	A.D. 1182 (= Subhakrit), Wednesday, 19th May (= 25 Vaigāśi, not yet Āni); ·85; ·32.	According to Mr. Gopinatha Rao it is very probable that Nāthamunigal flourished in the last quarter of the 9th and major portion of 10th century
13	Uiyākoṇḍār ...	Kaliyuga 3027 or 3927, Parābhava, Chittirai, śu. 15, "Chitra," Friday Variants: "Pūrṇamāśi" and Kṛittika."	A.D. 828 (Kīlaka, 2 years after Parābhava), Friday 17th April; ·99 (ba. 15 not śu. 15); nakshatra "Kṛittikā" began at ·97 of the day. A.D. 848 (=Prabhava, not Parābhava), Friday, 23rd March; nakshatra "Chitra" was current throughout Friday and came to end at ·02 on Saturday, A.D. 920 (=Vikrama), Saturday, 22nd April.	A.D. 1186 (=Parābhava), Friday, 4th April (= 11 Chittirai); *f.d.t.*, 70; *f.d.n.* 33. [There was a lunar eclipse next day.]	Details of date have evidently been much altered from manuscript to manuscript.
14	Tiruppāṇāḻvār ...	Kaliyuga 342 (or 120), Durmati, Kārttigai, ba. 2, Rohini, Wednesday. Variant: "Purnima."	A.D. 601, Wednesday, 15th November; ·87; ·77; or A.D. 841, Wednesday, 2nd November (=10 Kārttigai), Margaśira; śu. 15 ended at ·90 and nakshatra "Rohini" began at ·94, ending on Thursday at ·91.	A.D. 1261 (= Durmati), Wednesday, 9th November (=13 Kārttigai); ba. 2 began at ·64, ending next day at ·71; "Rohini" ended at 52.	Week-day does not suit A.D. 901, 961, 1021, 1081, 1144, 1201. According to Mr. Gopinatha Rao, this Āḻvār was between Nos. 7 and 9. In 601 there is a date, none in 721, 781.

Serial No.	Names of Āḷvārs.	Details of date given in the popular accounts.	Details of date verified from the Ephemeris so as to suit the conclusions arrived at by historical critics.	Details of date furnished by the Ephemeris in confirmation of the hypothesis that the details were copied from contemporary panchāngas in 12th or 13th cent. A.D.	Remarks.
(1)	(2)	(3)	(4)	(5)	(6)
15	Āḷavandār ...	Born Kaliyuga 4017, Dhātu, Ādi, śu. 15; Uttarāshāḍha, Friday. Died on 6th Vaigāśi, "Śravaṇa" day; no week-day.	A.D. 918 = (Bahudhānya, not Dhātu Samvat), Friday. 26th June. Date of death, A.D. 1038, Friday, 28th April.	A.D. 1216, Friday, 1st July (=5 Ādi); ·05; ·48.	According to Mr. Gopinatha Rao, Āḷavandār was born sometime after Nāthamuni's death.
16	Maṇakkāl Nambi.	Kaliyuga 3970 (or 3900, 3910 or 4030), Virōdhi, Māśi, śu. 14, "Maghā," Wednesday.	A.D. 929–930 (= Virōdhi); Māśi, śu. 14 joined with nakshatra "Maghā" on Monday (not Wednesday), 15th February A.D. 930. A.D. 929, February 25th, Wednesday which was 22 short of Virōdhi.	A.D. 1230 (= Virōdhi), Wednesday, 30th January (= 7 Māśi); purnima, not śu. 14 ended at ·81 and "Maghā" at ·81.	No suitable week-day in A.D. 740–50, 869–10, 869–70, 989–90, 1049–50, 1109–10, 1169–70, 1289–90, etc. In fact not a single date from 749–50 to 1409–50 suits exactly A.D. 1470, Wednesday 14th, Friday (= 20 Māśi), ·90; *f.d.n.* 28 alone suits.
17	Periya Nambi ...	Kaliyuga 4098; Hēviḷambi; Mārgaḷi; śu. 5; "Jyeshtha," Wednesday.	A.D 937 (= Hēviḷambi); on Wednesday, 11th October, śu. 4 ended and śu. 5 commenced at ·58 of the day while nakshatra Jyeshtha ended at ·21 on Wednesday. śu. 5 ended next day at 64. The month was Tula, not Mārgaḷi.	In A.D. 1237 (= Hēviḷambi), on Wednesday, 16th December (= 21 Mārgaḷi, "Jyeshtha" commenced at 18, but tithi was śu. 12 not śu. 5.	Tithi śu 5 cannot join with nakshatra Jyeshtha in Mārgaḷi month.
18	Rāmānuja ...	Kaliyuga 4118, Piṅgala, Chittirai 12, śu. 5; "Ārdrā," Thursday. Date of death of Rāmānuja is given by the chronogram *Dharmonashta* = Śaka 1059 (= A.D. 1137-8).	A.D. 1017, Thursday, 4th April (= 13 Chittirai); śu. 5 ended at 17 of day and nakshatra "Ardrā" at ·75 of day.	According to Mr. Gopinatha Rao, Rāmānuja when two-thirds of his great work *Mahābhāshya* was finished escaped from persecution by the Chōḷa king Kulōttuṅga I and sought refuge in the Hoysala country.	
19	Mudaliyāṇḍān ...	Śrīmukha, Chittirai 18; śu. 6; "Punarvasu," Monday.	Monday, 9th April, A.D. 1033 (= Śrīmukha) was 18 Chittirai but it was not a day of śu. 6 or "Punarvasu."	Chittirai 18 śu. 6, Punarvasu, Monday, is a possible combination but there is no actual example of it in a Śrīmukha year for 1,300 years. One actual instance in another year is A.D. 1266 (= Kshaya); Monday, 12th April (= 18 Chittirai); ·58; ·83. See paragraph 12 of the paper.	According to tradition Mudaliyāṇḍān, the nephew of Rāmānuja, was born when the latter was 16 years of age and day of month's week-day does not suit in 733, 793, 853, 913, 1093, 1153, 1213, 1273, 1333 1393, etc., up to A.D. 1993. śu. 10 can combine with Punarvasu only in Māśi, Panguni, while ba. 10 can concur with Punarvasu only in Āvani.
		Prabhava, Māśi 25; ba. 10, "Punarvasu," Thursday. Prabhava, Chittirai 25, śu. 10, "Punarvasu," Thursday. *Note.*—No Kaliyuga year is quoted.	In A.D 1041 (= Vṛisha), on Thursday 9th April, which was 18 Chittirai, śu. 6 joined with Punarvasu but the cyclic year was Vṛisha not Śrīmukha.	See last column.	
20	Kūrattāḷvār ...	Kaliyuga 4131, Pramōdhūta, Tai, śu. ·5 (obvious error for ba ·5), "Hastā," Sunday. Variants: "Saumya. Tai, Panchami, Hasta," Thursday."	In A.D. 1030–31 (= Pramōdhūta), ba. ·5 and "Hasta" joined on Saturday (not Sunday), 16th January, A.D. 1031. In A.D 090-91 (= Pramōdhūta), ba. 5 and "Hasta" joined on Sunday, 12th January, A.D 1091; ·93; *f.d.n.* ·16.	A.D. 1090–1091 is a calendrically correct year for the birth of Kūrattāḷvār, but according to Mr. Gopinatha Rao, Kūrattāḷvār and Periyanambi had their eyes gouged out by the Chōḷa king Kulōttuṅga I in Kalayukti = A.D. 1078-79. Moreover tradition has it that Kūrattāḷvār was 3 years older than Mudaliyāṇḍān. The dates of their birth in column (3), viz., A.D. 1031 January and April 1033, are supported by tradition, though not by the calendrical details furnished by the traditional account. See paragraph 12 of the paper.	

Serial No.	Names of Āḷvārs.	Details of date given in the popular accounts.	Details of date verified from the Ephemeris so as to suit the conclusions arrived at by historical critics.	Details of date furnished by the Ephemeris in confirmation of the hypothesis that the details were copied from contemporary panchāngas in 12th or 13th cent. A.D.	Remarks.
(1)	(2)	(3)	(4)	(5)	(6)
21	Ānandāḻvār ...	Kaliyuga 4154, Vijaya, Chittirai, 10, śu. 15, "Chitra," Friday.	A.D. 1048-49 (= Sarvadhāri, which is 5 years earlier than Vijaya); Friday, 1st April (= 10 Chittirai); ·63; ·44.	Note error in cyclic year in cases 21, 22 and 23, and see paragraph 12 of the paper. Mr. Gopinatha Rao remarks that Bhattar must have been over 88 at the time of his death, A.D. 1165; that Nanjiyar succeeded him, to be succeeded in turn by Nampiḷḷai or Lokāchārya: the latter's successor was Piḷḷai Lokāchārya, in whose time the Muhammadans invaded the south of India.
22, 23	Periya Bhattar and Śrīrāmpiḷḷai, twin sons of Kūrattāḻvar.	Kaliyuga 4175, Ānanda, Vaigāśi, śu. 15, "Anurādha," Wednesday. Variant: Subhakrit.	In A.D. 1063 (= Sobakrit, Kaliyuga 4164), on Wednesday, 14th May, śu. 15 commenced ending next day at ·13, while nakshatra Anurādha came to end at ·85 on Wednesday.		
24	Maṇavāḷamāmunigaḷ.	Kaliyuga 4471, Sadhāraṇa, Aippaśi, "Mulā," Friday.	In A.D. 1370 (= Sādhāraṇa), on Thursday (not Friday), 24th October, śu. 4 and nakshatra "Mūlā" ended both at ·62 of the day.	Note error in week-day and see paragraph 12 of the paper.	

APPENDIX (vii)

THE USE OF CYCLES OF RECURRENCE IN INDIAN CHRONOLOGICAL INVESTIGATION.

[*Paper read before the Second Oriental Conference, Calcutta, 30th January 1922.*]

The most interesting and at the same time the most complicated problems in chronological investigation may arise when we wish to ascertain the exact position of the sun or moon or one or more of the planets on an ancient date or to verify an alleged ancient eclipse. The problem which confronts the chronologist in practice is usually the converse of this. That is, he may have come across an ancient record indicating that the sun or moon or one or more of the planets stood in a particular position or that there was a solar or a lunar eclipse, and he may wish to make use of these astronomical facts to discover, establish or verify an ancient date.

2. The following are instances of such problems :—

(1) Vālmīki's Rāmāyaṇa states that Rāma was born on the 9th tithi of the lunar month Chaitra, when five planets were in exaltation, and these planets are assumed to be the Sun, Mars, Jupiter, Venus and Saturn. The houses of exaltation of these five planets are Mēsha (or Aries , Karkaṭaka (or Cancer), Mīna (or Pisces) and Tula (or Libra). The chronologist may put himself the question ; were these planets at any time in the positions named, on the 9th tithi of Chaitra, and if so when? Whether the casting of such a horoscope was possible at any date which might be assigned on general considerations to Rāma's birth, is a distinct question which the chronologist may have to answer by way of supplementing his answer to the first question. (*Indian Chronology*, Second Edition, pages 109—122).

(2) When Sankara was born, four out of the same five planets, i.e., all excepting Venus, are supposed to have been in exaltation. Nobody doubts but that the casting of a horoscope was possible when Sankara was born but the other question corresponding to that raised by Rāma's horoscope, viz., for what date Sankara's horoscope was true, must be answered by the chronologist. (*Indian Chronology*, Second Edition, pages 109—122.)

(3) Various collocations of the planets are referred to in the Mahābhārata as having been noticed at the time of the great battle in the months of Kārttika-Mārgaśīra: (i) Were these observations possible at any date which could be assigned to the Mahābhārata? (ii) Are these so-called observations consistent with one another? (iii) Was any particular alleged observation, e.g., that about Mars retrograding in Maghā nakshatra in the month of Kārttika, astronomically impossible, and what bearing has this fact on the other observations supposed to have been made at the same time? (iv) Can a definite date be assigned to any of the collocations?

These are a few of the many tantalizing issues raised by the astronomical references in the Mahābhārata. (*Indian Chronology*, Second Edition, Appendix, Paper V.)

(4) An ancient Chinese observation is said to refer to five planets, the Moon, Mars, Mercury, Jupiter and Saturn, which were in the same constellation "Shi" (perhaps Krittikā) between 25 ·0 B.C. and 2400 B.C. Was there such a conjunction? Did it happen more than once during the period in question? And if it happened only once, would that enable us to fix the date? The Chinese civilization is, by all accounts, very ancient, and for aught we know, such an observation may well have been made at the time alleged, and it would be interesting if the chronologist could discover, establish, or verify, the date. (*Indian Chronology*, Second Edition, pages 123–124.)

(5) Coming to times more distinctly modern, an ancient Jewish tradition connected the birth of the Messaiah with a conjunction of Jupiter and Saturn. Was there such a conjunction at any date which could with any probability be assigned to the birth of Christ, and would such a conjunction throw a light on the state of the heavens at the time of the birth of Christ, as narrated in St. Luke's Gospel? (*Indian Chronology*, Second Edition, pages 125—127.)

(6) The Jews in Cochin on the West Coast of the Madras Presidency are in possession of an ancient copper-plate grant which is still shown to visitors at the Jewish synagogue in Cochin, and their belief is that the grant was made by a king of Cochin called Bhaskara Ravi-Varman in the 1st century A.D. The date of the copper plate is the 2nd year opposite the 36th year. This so-called opposition of years is itself a chronological problem. Fortunately within the last few years of the twentieth century A.D., other copper-plate grants by a king or kings bearing the same name Bhaskara Ravi-varman have come to light in a part of the country not far from Cochin and they refer to a position of Jupiter in Tulā rāsi along with other astronomical details. The chronologist may feel disposed to review the Cochin Jews' grant in the light of these positions of Jupiter, and then he may have to relegate it to the 11th or 12th century A.D. (*Indian Ephemeris*, Volume I, Part II, page 120.)

(Travancore Archaeological Series, Vol. II, No 7.)

(7) Lastly, in the very heart of Tamil Sangam literature, where one would least expect it (if, according to the late Mr. Kanagasabhai Pillai in his *Tamils 1800 years ago* and the present *Dr. S. Krishnaswami Ayyangar* in his *Ancient India*, that literature is stamped with clear reminiscences of the 1st and 2nd centuries A.D.), there is a complete horoscope (see *Paripādal*, Canto XI), giving the positions of Sun, Moon, Mars, Mercury, Jupiter, Venus and Saturn on a particular day which was also a day of Lunar Eclipse early in the morning. Without reference to theories about the time of appearance of the Sangam literature, the chronologist may attempt to locate this horoscope in time. (*Indian Chronology*, Second Edition, pages 98—109.)

3. Solutions of problems (1) to (6) have been presented to the public by various writers, but so far as I am aware, no one has presented a rigorous *method* of solving them such as will satisfy a mathematician and at the same time one which anybody could study and thereafter apply to a criticism of the solutions of different critics, so as to be able in turn to criticize or challenge them. In this century when even the Newtonian law of gravitation has been challenged, it has become incumbent on an author voluntarily to provide what are euphemistically termed *pros* and *cons*, i.e., every facility for the dissection and public criticism of his scientific conclusions. In the Second Edition of "*Indian Chronology*" I have fully stated my method of solving such problems.

4. There is one essential difference between ordinary or civil chronology and those extraordinary chronological investigations with which we are now concerned. The ordinary civil chronology of all nations, except the Hindus, occupies itself with the mean or average movements of the two heavenly bodies which among all peoples and at all times have served as the measures of time, the sun and the moon: in India alone, in the period since about A.D. 500 the actual positions, rather than the mean, of these heavenly bodies as well as of others have to be taken into account. In the exceptional chronological investigations we are now discussing the *actual* positions of the sun, moon and planets are in question, and it is in the determination of *actual* positions, without actual calculation, that we find cycles of recurrence to be of real practical value. In India owing to the peculiarity noted above, the actual positions of the heavenly bodies dealt with, whether sun, moon or the planets, are the normal topic of chronology and the only way of determining those positions, if we wish to keep in the background the details of astronomical calculation which repel even investigators, is by using cycles of recurrence. The very long cycles of 432,000 years and 4,320,000 years which are used in Indian astronomical works are not useful for our purpose, and indeed they are meant for a different purpose altogether.

5. For tithis and nakshatras, for which Indian chronology postulates minute accuracy as regards ending moments, we have to employ quite a number of cycles of recurrence :—

For the mean ending moment of tithis we use successively—

(A) 64 tithis = 63 days — ·001 day.
(B) 703 tithis = 692 days + ·0001 day.
(C) 9,203 tithis = 9,059 days + ·00002 day.

For the moon's tithi equation we use —

(A) 28 tithis = 1 anomalistic month — ·007 day.
(B) 3,779 tithis = 135 anom. months — ·001 day.

For the mean ending moments of nakshatras, we use—

(A) 84 nakshatras = 85 days + ·0008 day.
(B) 1,343 nakshatras = 1,359 days + ·0003 day.

For the moon's nakshatra equation we use —

(A) 354 nakshatras = 13 anomalistic months + ·008 day.
(B) 3,431 nakshatras = 126 anomalistic months + ·003 day.

After 550 years less 19 days, the mean and actual ending moments of nakshatras and the nakshatra equation of every successive nakshatra will be the same ; the serial number of each nakshatra being + 4, and week-day + 1.

6. So far as can be perceived, there is no similar cycle connecting the mean ending moment of a tithi and the two equations which, in Indian astronomy, determine its actual ending moment. The cycles defined above enable us, however, to write down, or print, successively for any number of years, the mean ending moments and the two equations of successive tithis ; the labour saved in this way enables us to calculate the actual ending moments of successive tithis and nakshatras for ten years in a single day, or for 1,500 years in 150 days, whereas the ordinary Indian panchanga-maker spends not less than a whole month in calculating the tithis of a single year and he spends on the whole three months for preparing a single year's panchanga. (*Indian Ephemeris*, Volume I, Part II, page 2.)

7. In regard to planets, the Indian system enables the chronologist to obtain the actual positions of planets practically for all time with sufficient accuracy for *his* purposes, by using appropriate cycles, but neither the fact that such cycles exist nor the possibility of using them for arriving at the actual positions of planets on any ancient date has, so far as I am aware, been ever brought to public notice, any more than the possibility of calculating by means of appropriate cycles the actual ending moments of tithis and nakshatras for any date past, present or future. It is for this reason that I crave the indulgence of the conference for my present note. As in the case of tithis, the Indian system uses only two equations for determining the actual geocentric place of a planet, and this process gives results which seldom differ from the absolutely correct result by as much as two degrees. The two equations depend, the one on the mean longitude of the planet, and the other on the mean longitude of the sun for the moment in question. (This statement overlooks certain minor details of calculation but it is in the main correct.) By using certain long period cycles for the different planets (363 years for Mars, 355 years for Mercury, 605 years for Jupiter, 235 years for Venus, 383 years for Saturn, and 1,711 years (less two days) for Rāhu or the moon's ascending node), we are able to set down at once without calculation the date when the same planet was in the same position any number of years before the present time.

8. For determining the movements of the several planets during the single cycle, we do not need to calculate the movements of Mars for 363 years, of Mercury for 355 years, of Jupiter for 605 years, of Venus for 235 years, of Saturn for 383 years and of Rāhu for 1,711 years. Each one of these long cycles is connected with certain shorter cycles which have been known for a long time (Mars, 79 years ; Mercury, 46 years ; Jupiter, 83 years ; Venus, 8 years ; Saturn, 59 years, and Rāhu, 18 years and 10 days) in such a way that out of each shorter cycle the corresponding longer one may be evolved by a simple arithmetical process. The exact way in which this is done may be best understood from the illustrations given in the Second Edition of *Indian Chronology* (pages 127—131).

9. In addition to the cyclic tables referred to above, we want, for the investigation of horoscopes in which years are omitted, which is the case with all ancient Indian horoscopes, also a table giving in parallel columns for Mars, for Jupiter and Saturn, the increase of mean longitude for one year, for two years, for three years, and so on, up to, say, 2,000 years; and we also want, at any rate for Mars, an eye-table giving for each day of the Indian solar year, or for every ten days, the actual geocentric longitude corresponding to every successive degree of mean longitude. (*Indian Chronology*, Second Edition, Tables IV, V-A and V-B.)

10. Armed with these three tables, we may with confidence approach the solution of any of the planetary problems set out in paragraph 2 supra: the actual solutions of all the problems, or a proof that a solution does not exist, will be found in the Second Edition of *Indian Chronology* and the appendices thereto.

11. We may conclude with a remark about eclipses. The well-known eclipse cycle, called the Saros of 18 years and 10 days, has to be combined for our purposes with another cycle of 58 years less 41 days, after which the sun returns to almost exactly the same position with reference to the moon's ascending node. The combination can be carried on for 1,711 years less two days, after which the whole series is repeated without alteration. For lunar eclipses this cycle gives good results and for solar eclipses certain considerations as to visibility of solar eclipses which are explained in the second edition of my *Indian Chronology* have to be borne in mind.

12. On the general subject of the investigation of ancient dates in India it is well to bear in mind the results of recent historical research in India as well as in Europe:

While Indian literature is undoubtedly ancient, every part of it is not equally ancient. Particularly in the department of Indian astrology, a number of patently modern compositions pass for the works of rishis dating from the dawn of Kaliyuga or earlier. They are simply forgeries in the sense that they profess to be very ancient, whereas they are not, and an astronomical analysis of their contents, which is possible whenever they contain horoscopes, will reveal their absolutely modern character. A circumstance of which astrologers do not seem to be aware, but which the public at any rate is interested in knowing, is that a genuine horoscope containing the positions of five or six planets in rāsis (i.e., in multiples of 30°, without specification of the particular degree), provided the time of year is indicated even in general terms, should enable an investigator working on the lines indicated in *Indian Chronology*, Second Edition, to verify its date in such a manner that the same horoscope would not be applicable to more than one date, at most to two, during a period of several thousand years. This principle may be shortly enunciated as "one horoscope, one date." I would go so far as to throw out a challenge that the entire contents of the collections of horoscopes, known by the name of *grantha nāḍi* in southern India and by other names elsewhere, can be proved mathematically to be concerned exclusively with the lives of persons born within the last hundred years. Why should the *maharshis* who wrote in the dawn of Kaliyuga have concerned themselves exclusively with people living within the last hundred years from, say, A.D. 1820 to A.D. 1920?

13. I have in my possession a Tamil pamphlet giving Rāma's horoscope in most minute detail, but without the year. I do not enter into the question whence these details were derived, but it does not seem to have occurred to the learned author of the pamphlet that a horoscope with so many details can be referred only to one year, month, day, hour, and minute in a million years, and nevertheless he has made no attempt to find out the year, which would at least have been interesting as a speculation.

14. If we approach the question from the historian's point of view, we find (*Encyclopædia Britannica*, Vol. 2, page 797, Article *Astrology*) that "the theory of the ecliptic does not appear to have been perfected until after 539 B.C.

The researches of Bouché-Leclercq, Cumont and Boll have enabled us to fix

1. Bouche Leclercq *L'Astrologie Grecque*, Paris, 1899.

2. Franz Cumont, "*Catalogus codicum astrologorum Graecorum*," Brussels, 1898; 7 parts, published up to 1909.

3. Franz Boll, "*Die Erforschung der antiker Astrologie.*"

4. Ch. Virolleaud, "*L'astrologie chaldéenne*," Paris, 1905, to be completed in 8 parts, transliteration and translation of cunei-form texts.

with a considerable degree of definiteness the middle of the fourth century B.C. as the period when Babylonian astrology began its triumphal march to the West, invading the domain of Greek and Roman culture and destined to exercise a strong hold on all nations and groups—more particularly in Egypt—that came within the sphere of Greek and Roman influence." (Astronomy proper was just dawning in Babylonia at the downfall of the Babylonian empire, 539 B.C.) . . "In the hands of the Greeks and of the later Egyptians astrology and astronomy were carried far beyond the limits attained by the Babylonians" (The Babylonian astrology was confined to inspecting the heavens in order to foretell their influence on kings and public events). . . . "The endeavour to trace the horoscope of the *individual* from the position of the planets and stars at the time of birth (or as was attempted by other astrologers at the time of conception) represents the most significant contribution of the Greeks to astrology."

15. A perusal of the article from which the above passage is extracted will convince any one that the astrology which we find reflected in classical works (Livy, Tacitus, Plutarch, etc.) as well as in Shakespeare's references to celestial prodigies in *Hamlet* and *Julius Cæsar* (reproduced partly from Plutarch and partly perhaps from the contemporary astrological writers of Queen Elizabethan's time, whose name was legion), is the astrology of empires, prognosticating revolutions among mankind, and not the fortunes of private individuals; that the later kind of astrology, called judicial, was probably invented by the Greeks and Chaldeans in the two or three centuries preceding the Christian era, that from Greece it spread to Rome probably within the last 150 years B.C. and that in the first 150 years A.D. it was actively cultivated at Rome as testified to by Juvenal and other writers, and in the Roman Empire, chiefly at Alexandria, becoming associated about 150 A.D. with the illustrious name of Klaudios Ptolemy.

16. An examination on the other hand, of dated early Indian astrological works by Varāhamihira and others (see Dr. *Burgess' Notes* in J.R.A.S., 1893, on *Hindu astronomy and the sources of our knowledge of it*) will convince us that Varāhamihira freely borrowed his astronomical constants, terms and phrases from the Greek writers; and that the true genesis of Indian astrology is from the Greek writers on astrology between A.D. 150 and A.D. 300, so that Varāhamihira is an intellectual descendant of Ptolemy, while astrologers like Garga who were earlier in date than Varāhamihira and whom we know of only by name could not have been more ancient than the Chaldean and Greek astrologers who were the progenitors of judicial astrology. We are confronted also by the fact that the early Indian literature (Sanskrit or Dravidian) before A.D. 300 does not refer to the signs of the zodiac, to the movements of the planets or to planetary horoscopes, which are as it were the tripod of astrology. And we have the valuable indirect evidence furnished by Juvenal that at Rome in the 1st century A.D. when there was a general craze for astrology and divination, Indian professionals were imported into Rome, as *augurs*, not as *astrologers*.

17. The allusions to astrology which are to be found in ancient Indian works, like the Rāmāyana and the Mahābhārata, are as a rule, mere astrological tit-bits introduced or rather interpolated into the text by subsequent copyists, editors or scholiasts. Other ancient Indian works simply ignore planetary astrology, though they refer to good and bad days as determined by the movements of the Sun and the Moon. Where a literary work, like Śudraka's *Mṛicchakaṭika*, or Subandhu's *Vāsavadatta*, refers to planets, its composition may be safely referred to a date later than the 5th century A.D. The probable dates of these important works, as determined by critics on other data, agree with this presumption.

18. Eclipses are no doubt alluded to in ancient Indian works, but an eclipse, unconnected with any other indication of date, is of as little use for chronological investigation as the references to lunar months and tithis in the Brahmi inscriptions in India of the third and second centuries B.C.

19. As a rule, either a horoscope or an allusion to a week-day is necessary for verifying an Indian date and both horoscopes and week-days (as the writer has shown elsewhere) are in India posterior to 300 A.D.

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AN INDIAN EPHEMERIS

A.D. 700—A.D. 1799

BOOK-MARKER.

Decimals of a day.	Ghaṭikas.	Hours and minutes.	Decimals of a day.	Ghaṭikas.	Hours and minutes.
		H. M.			H. M.
·00	0	0 0	·50	30	12 0
·01	0½	0 15	·51	30½	12 15
·02	1	0 30	·52	31	12 30
·03	2	0 45	·53	32	12 45
·04	2½	1 0	·54	32½	13 0
·05	3	1 15	·55	33	13 15
·06	3½	1 30	·56	33½	13 30
·07	4	1 45	·57	34	13 45
·08	5	2 0	·58	35	14 0
·09	5½	2 10	·59	35½	14 10
·10	6	2 30	·60	36	14 30
·11	6½	2 40	·61	36½	14 40
·12	7	2 50	·62	37	14 50
·13	8	3 10	·63	38	15 10
·14	8½	3 20	·64	38½	15 20
·15	9	3 35	·65	39	15 35
·16	9½	3 50	·66	39½	15 50
·17	10	4 5	·67	40	16 5
·18	11	4 20	·68	41	16 20
·19	11½	4 30	·69	41½	16 30
·20	12	4 45	·70	42	16 45
·21	12½	5 0	·71	42½	17 0
·22	13	5 20	·72	43	17 20
·23	14	5 30	·73	44	17 30
·24	14½	5 45	·74	44½	17 45
·25	15	6 0	·75	45	18 0
·26	15½	6 15	·76	45½	18 15
·27	16	6 30	·77	46	18 30
·28	17	6 45	·78	47	18 45
·29	17½	7 0	·79	47½	19 0
·30	18	7 10	·80	48	19 10
·31	18½	7 30	·81	48½	19 30
·32	19	7 40	·82	49	19 40
·33	20	8 0	·83	50	20 0
·34	20½	8 10	·84	50½	20 10
·35	21	8 25	·85	51	20 25
·36	21½	8 40	·86	51½	20 40
·37	22	8 50	·87	52	20 50
·38	23	9 10	·88	53	21 10
·39	23½	9 20	·89	53½	21 20
40	24	9 35	·90	54	21 35
41	24½	9 50	·91	54½	21 50
42	25	10 0	·92	55	22 0
43	26	10 20	·93	56	22 20
44	26½	10 30	·94	56½	22 30
45	27	10 45	·95	57	22 45
·46	27½	11 0	·96	57½	23 0
·47	28	11 20	·97	58	23 20
·48	29	11 30	·98	59	23 30
49	29½	11 45	·99	59½	23 45

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Table I.—Order and Names of Nakshatras.

1 Aśvinî (**Tam.** Asuvati)
2 Bharaṇî
3 Kṛittikâ (**Tam.** Kiruttigai)
4 Rohiṇî
5 Mṛigaśîra (**Tam.** Mirugasīram)
6 Ârdrâ (**Tam.** Ārudra or Tiruvādirai)
7 Punarvasu (**Tam.** Punarpūsam)
8 Pushya (**Tam.** Pūsam)
9 Âśleshâ (**Tam.** Āyilyam)
10 Maghâ (**Tam.** Magham)
11 Pûrva Phalguṇî (**Tam.** Pūram)
12 Uttara Phalguṇî (**Tam.** Uttiram)
13 Hasta (**Tam.** Hastam, Attam)
14 Chitrâ (**Tam.** Chittirai)
15 Svâti (**Tam.** Sōdi)
16 Viśâkhâ (**Tam.** Visākam)
17 Anurâdhâ (**Tam.** Anusham, Anilum)
18 Jyeshṭha (**Tam.** Kēṭṭai)
19 Mûla (**Tam.** Mūlam)
20 Pûrva Âshâdhâ (**Tam.** Pūrādam)
21 Uttara Âshâdhâ (**Tam.** Uttiraḍam)
21-A Abhijit
22 Śravaṇa (**Tam.** Tiruvōnam)
23 Śravishtha or Dhanishtâ (**Tam.** Aviṭṭam)
24 Satabhisaj or Satatârakâ (**Tam.** Sadayam)
25 Pûrva Bhadrapadâ (**Tam.** Pūraṭṭādi)
26 Uttara Bhadrapadâ (**Tam.** Uttiraṭṭādi)
27 Revatî

Tables II and III.—For ascertaining Moment of Sankrānti.

The moments of Mesha Sankrānti, according to Sūrya Siddhānta and Ārya Siddhānta, are given in the headlines of this ephemeris. To ascertain the moment of any other Sankrānti, add to the moment of Mesha Sankrānti for the given year the moment of the required Sankrānti according to table II below. The result will be a certain number of days counted from 1st March or 1st April (according as the year was before or after A.D. 1752). To convert this into the English Calendar date, use the nearest figure in table III below which shows for the 1st of every month the number of days counting from 1st March or 1st April as the first day. *Example:*

Required the moment of Makara Sankrānti (Uttarāyana) for A.D. 999, Ārya Siddhānta.

The ephemeris for A.D. 999 gives, as the moment of Mesha Sankrānti, Ārya Siddhānta, March	23·44
Add from table II for moment of Makara Sankrānti, Ārya Siddhānta (days)	275·65
Total days ...	299·09

This being reckoned from March 1 as the first day is equal, according to table III, to December 1 + (299·07 − 276) = December 1 + 23·07 = December 24·07 *answer*.

Table II.—Moments of Commencement of Sankrāntis.

Rāsis.	Tamil Solar months.	Moment of Sankrānti in days of Solar Year, and decimals of a day.	
		Sūrya Sid. Days.	Ārya Sid. Days.
Mesha ...	**Chittirai** ...	0·0	0·0
Vrishabha ...	**Vaigasi** ...	30·93	30·92
Mithunam ...	**Ani** ...	62·36	62·33
Karkadam ...	**Adi** ...	94·00	93·93
Simham ..	**Avani** ...	125·48	125·40
Kanni ...	**Purattasi**	156·49	156·44
Tulam ...	**Aippasi** ...	186·94	186·89
Vrischikam ..	**Karttigai** ...	216·83	216·79
Dhanus	**Margali** ...	246·32	246·30
Makaram ...	**Tai** ..	275·64	275·65
Kumbham ...	**Masi** ...	305·08	305·11
Minam ...	**Panguni** ...	334·90	334·92
		365·26	365·26

Table III.—Days of the English Calendar Year, reckoned cumulatively from March 1 and April 1 respectively.

—	From March 1.	From April 1.
March 1	1	...
April 1	32	1
May 1	62	31
June 1	93	62
July 1	123	92
August 1	154	123
September 1	185	154
October 1	215	184
November 1	246	215
December 1	276	245
January 1	307	276
February 1	338	307
March 1		335
Do. Leap year		336

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